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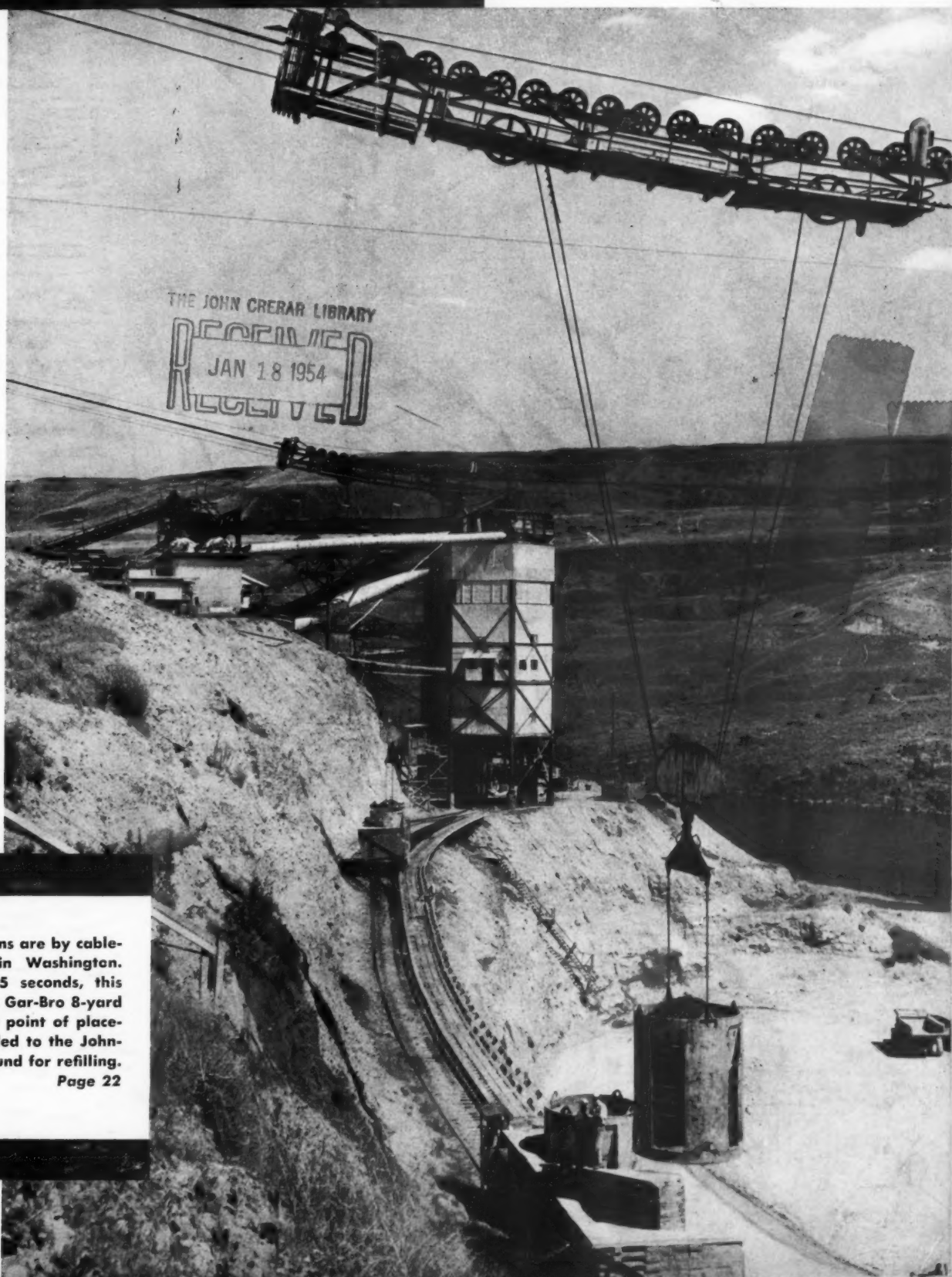
# Engineers

JANUARY 1954

Rock Tunnel Under Boston Harbor

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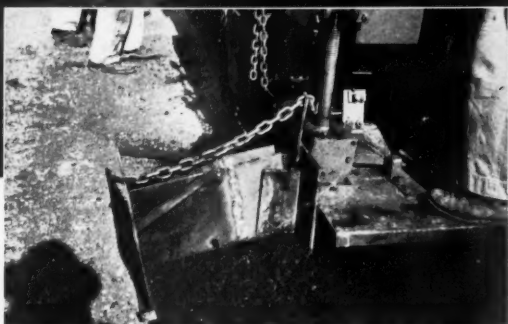
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Swift concrete-placing operations are by cableway at Chief Joseph Dam in Washington. Making a 700-foot trip in 15 seconds, this Washington cableway picks up Gar-Bro 8-yard buckets and takes them to the point of placement. Empty buckets are shuttled to the Johnson batch plant in the background for refilling.

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Constructing heavy-duty Texaco Asphaltic Concrete on 11½-miles of US 85-87, from Trinidad, Colo. south to the New Mexico line.

# Colorado's answer to an important highway problem



Special device on paving machine forms an asphalt shoulder tapering to a feather edge.



The complete project, constructed by Leone Construction Co., Inc. of Trinidad, under direction of State Resident Engineer, A. C. Copeland.

US 85-87 is one of Colorado's main highways. It is used by most Colorado-New Mexico traffic, as well as considerable Colorado-Texas traffic. An 11½-mile section of this route from Trinidad, Colo., to the New Mexico line was a two-lane road with an oil mat surface. The reconstruction of this road last year to meet the demands of today's traffic was featured by the use of heavy-duty hot-mix Texaco Asphaltic Concrete paving and low-cost local aggregate.

The old oil mat was broken up and pulverized, then spread to a width of 33 feet to provide a 3-lane highway. This was topped by a 6-inch sub-base of mine waste, followed by a 2-inch gravel leveling course. The hot-mix Texaco Asphaltic Concrete wearing surface completed the new highway. The compacted thickness of the asphalt

top was 3 inches at the outside, decreasing to 2 inches in the center. A special 18-inch beveling device attached to the asphalt paving machine (see photograph) places an asphalt shoulder at each side of the pavement, tapering from 3 inches to a feather edge. This minimizes edge break-off and the hazard attached to moving on and off the pavement.

Texaco Asphalt Cements, Cutback Asphalts and Slow-Curing Asphaltic Oils offer the road builder a wide choice of improvements for highways, streets and airports. These types range from resilient, heavy-duty pavements of asphaltic concrete and sheet asphalt down to a dust layer. Helpful information about all of these types has been incorporated in two illustrated booklets, which you can obtain without obligation by writing our nearest office.

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# TEXACO ASPHALT



# Contractors and Engineers

magazine of modern construction

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Albert T. Miller

# EDITORIAL

## A Needed Change In Soil Conservation

When Secretary of Agriculture Ezra Taft Benson recently announced a proposed reorganization of the U. S. Department of Agriculture, the plan immediately became one of the most controversial subjects in Washington. Most of the furor which it has raised concerns specific changes which Secretary Benson has proposed in the Soil Conservation Service. These changes involve, among other things, the abolition of some regional Soil Conservation Service offices, with many of their functions transferred closer to state and grass-roots levels.

We believe this reorganization will be a wise move because it is so logical.

The very effectiveness of a soil conservation program starts at the grass-roots level. No program of public service requires more intimate knowledge or more efficient administration at a local level than does soil conservation. Since the proposed reorganization would transfer many important but centralized functions to that level, and since the suggested changes generally follow the recommendation of the Hoover Commission report, Secretary Benson's action is sound indeed.

We feel that much of the clamor has been unwarranted. A good portion of it has come from people who fear their jobs may be lost in the reorganization, people who should know that capable soil conservation engineers, agronomists, and other expert technicians in the field will be even more in demand in the future scheme than they are under the present setup. By and large, no group of men has done a better job than the men in SCS regional offices now slated to be abolished. These men will certainly find a spot in whatever new setup is devised.

Nor is their current situation without precedent. A similar clamor went up last summer when the Bureau of Reclamation was forced to cut down on personnel. In one office, 60 engineers were laid off. Yet within 6 weeks, all these men found jobs as good as, or better than, those they had left.

When and if the reorganization takes place, some of the people affected will have to readjust their thinking. There are many people in bureaus of the U. S. Government who simply do not feel that anything can be done efficiently at the local level. Over the years, they have come to believe that only top-heavy Government organizations can do the job. Thus many a department has been built up around regional and district offices, with divisions, departments, sections, subdepartments, subsections, and all other such organizational stratifications which more often than not simply duplicate work, add unnecessary employees, and increase human frustration.

Secretary Benson's move should correct this in the Soil Conservation Service.

Soil conservation is among this nation's more important public works. Effective control of any watershed must always begin with sound agriculture, good forestry, and the systematic conservation and buildup of vital topsoil. We hope the proposed reorganization of USDA will mean an even more important place for soil conservation in stream basin development, that larger appropriations for the new decentralized activity can be expected in the future than has been customary, and that the transfer of these functions to the grass-roots level will mean better soil conservation for the generations to come. We believe they will.

## News and Views

The year ahead promises to be a good one for the construction industry, with near-record levels of activity continuing in most types of work. However, estimates from both Government and private sources generally agree that a dip in building will occur. This year's total value of new construction is expected to stand at about 34 billion dollars, a drop of 2 or 3 per cent below last year's all-time high of almost 34.8 billion.

Public construction is valued at 11.2 billion dollars for 1954, which keeps it close to last year's level of 11.3 billion. Private construction will also register a slight downward move, with 22.8 billion expected to be spent in 1954. Last year's outlay came to 23.4 billion.

Look for much of the decrease in construction to come in the field of industrial and military work. This slight easing of activity is a continuation of the tapering-off first evident in the latter part of 1953. And the increased competition which marked this shift should become more pronounced this year.

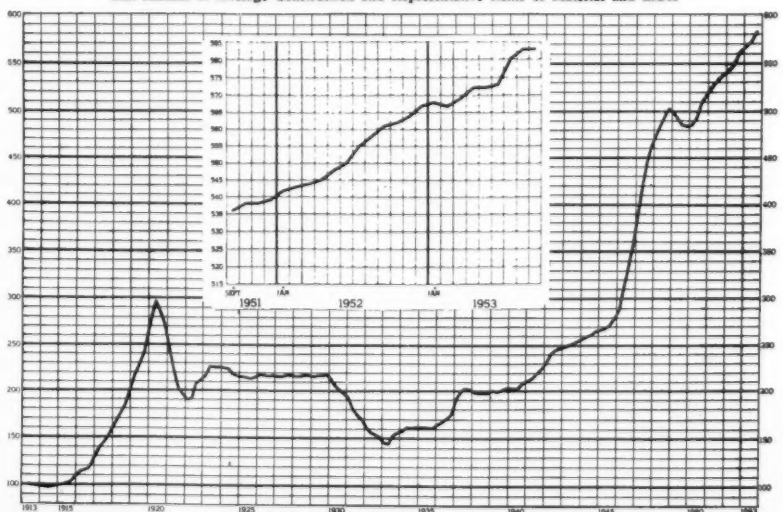
In other areas, construction is expected to equal, if not better, the 1953 figure. Public utility construction should show a gain. Educational building and highway construction may reach record highs in the next twelve months.

Contracts for highway work were 21 per cent over the 11-month total for 1952 as of the beginning of last month, according to figures compiled by the F. W. Dodge Corp., industry statisticians. This high level, it is held, is almost certain to carry well over into 1954.

As could be expected, forecasts range all the way from boom to depression. Pessimists might be inclined to agree with British economist Colin Clark who believes that the country will settle back to 1949 levels by the middle of the year and skid even more as 1954 wears on. He also predicts higher construction costs relative to other costs. In the opposite camp is Gabriel Hauge, White House economic assistant, who feels

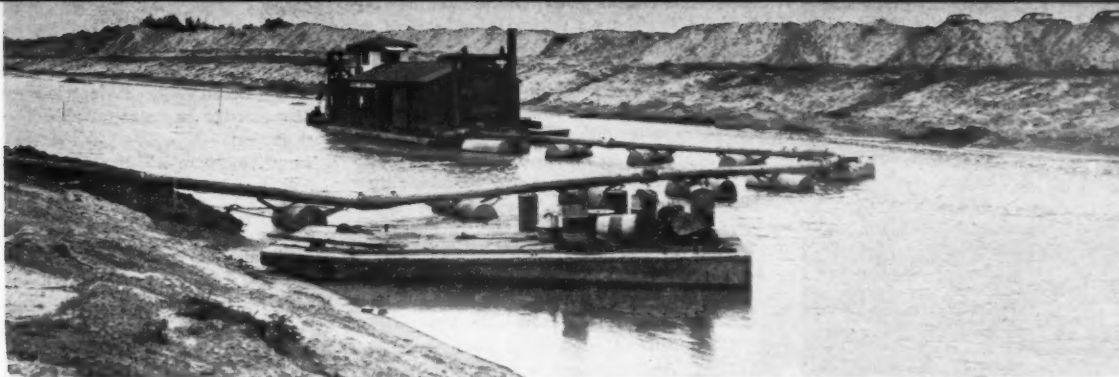
that various tax cuts will prove a spur to the economy. In the event of an economic storm, Hauge adds, the Government is ready to undertake anti-depression remedies, including public works projects for highways and public buildings. But most of the forecasters now think that the worst shock has passed for the construction industry, and that a period of readjustment—not recession or depression—will mark 1954.

The American Appraisal Company Construction Cost Indexes and Graph  
Cost Indexes of Average Construction and Representative Items of Material and Labor



NOTE—This index applies to construction only and does not include building fixture items such as plumbing, heating, lighting, sprinkler system, etc.; it is based on average costs under normal conditions with no allowance for overtime, premiums on materials, or special conditions. It is the composite of four types of buildings—frame, brick, concrete, and steel—in 30 representative cities, and therefore should be used only as a trend as it is not applicable to specific buildings.





The 12-inch hydraulic dredge Gopher is refueled. Pontoon sections are carried on specially built steel tank floats.

# New Diversion Channel for the Mississippi

A FLOATING DREDGE digging a channel across the flat farmlands of central Minnesota is a strange sight to most visitors in the area. But persons living in the vicinity of Aitkin, Minn., find nothing strange in the job that the dredge is doing—making a flood-diversion channel that will by-pass flood waters of the Mississippi and alleviate the damaging floods that have ravaged the area for years.

Aitkin is located at the southern extremity of a horseshoe bend made by the Mississippi as it flows from the north. At this point, flood potential is increased by the waters of the Little Willow River which enter the Mississippi north of the city. As far back as 1899, a long campaign for Federal assistance in a flood control project was started in the area. Then in 1948, after a number of delays, Congress authorized the construction of a diversion channel near the city.

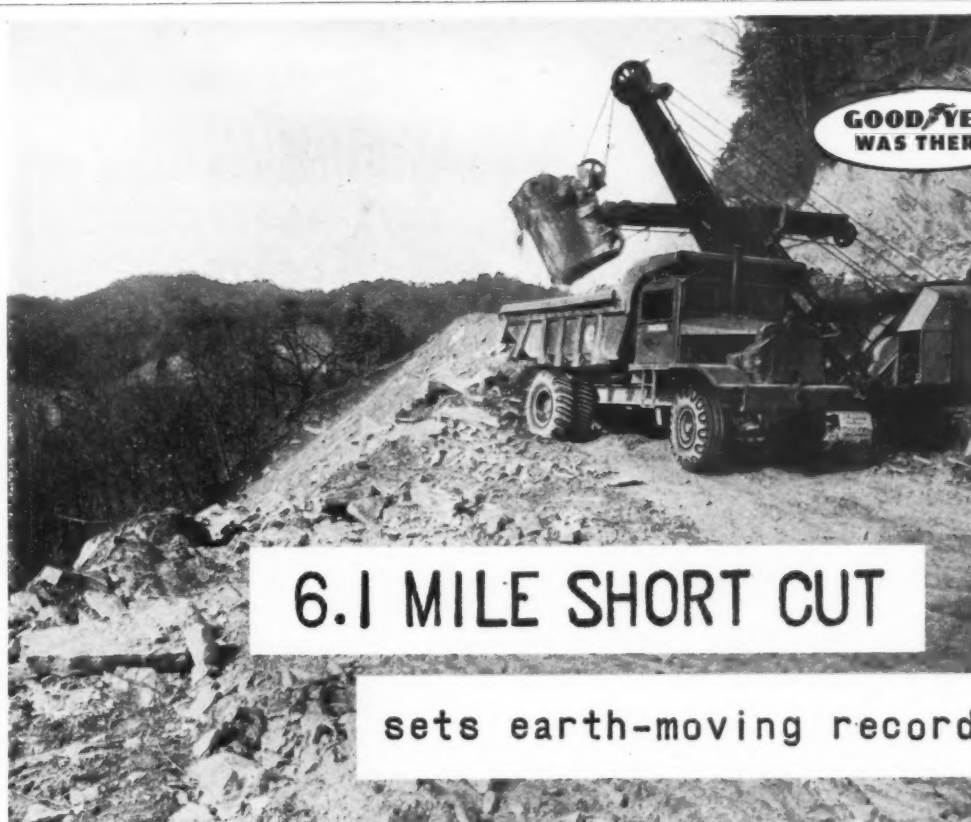
The 5.9-mile channel runs across the base of the horseshoe made by the Mississippi, cutting off 28 miles of the river and intercepting the Little Willow about four miles north of Aitkin. During normal flows, the Mississippi will follow its natural winding course. In its higher stages the river will flow through the new channel, reducing the flood danger to the city and the adjacent area.

The contract for the work was awarded to the Midwest Dredging Co., Minneapolis, Minn., on July 7, 1952, and the ground-breaking ceremony was held September 12, 1952. Immediately afterward, Midwest Dredging Co. and Eugene Luhr & Co., Inc., Columbia, Ill., began operations. The contract called for completion of the channel in 825 days, excluding free time between December 1 to April 15. Because of the urgent need for the facility, however, plans were made to finish the job in 600 days. Now it appears that even this schedule will be bettered without an increase in the contract price.

## Excavation

The channel is 5.9 miles long, 90 feet wide at the bottom, and 20 feet deep. More than four million cubic yards of glacial drift, including everything from heavy plastic clay to huge boulders, were included in the job. Moving in the dredge and two big draglines was the first major operation. The 12-inch hydraulic

(Continued on next page)



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The contract called for blasting and slicing record cuts through mountaintops—and phenomenal fills—but the W. E. Graham Construction Company of Cleveland, N. C., moved 3½-million cubic yards in less than three-quarters of the time estimated!

Not bad for a job that included an 880,000 cubic-yard fill, a 440,000 cubic-yard cut, up to 350-foot differences between fill bottoms and pregraded knolls (all within 450 feet of roadway)—and a 173-foot-deep fill over a 66' x 576' culvert!

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FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

# GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND



A Link-Belt K595 dragline with a 3-yard light-weight bucket excavates a pilot channel for the Mississippi flood control facility.

(Continued from preceding page) dredge Gopher, belonging to Midwest Dredging Co., was dismantled at Lambert landing in St. Paul, Minn., and hauled to the job site on the largest truck-trailers available.

The hull of the dredge is made up of staggered sections bolted together internally. These sections, 11½ feet wide and 5 feet deep, are 24 or 36 feet long and weigh up to 17 tons. The dismantled dredge was hauled

to the job site in 14 loads. Dismantling the dredge at St. Paul and re-assembling it at the job site took about a month.

The Gopher was designed by Morris Machine Works and built by Midwest Dredging Co. A 600-hp supercharged Nordberg diesel engine drives the Morris 12-inch dredge pump. A Caterpillar D17000 engine with 120-kw generator set provides electrical energy for auxiliary use.

A 75-hp electric motor drives the cutter shaft at a speed of 25 rpm through a Cleveland worm gear. This basket-type cutter is 40 inches in diameter and 40 inches long. It is modified by cutting 6 inches off the back of the blades and adding cutting teeth when heavy plastic clay

is encountered. The 35-foot ladder on the dredge has a removable 14-foot section.

An American 5-drum winch, driven by a 30-hp electric motor, is completely air controlled. Drums operate the ladder hoist, swing cables, and spud hoists. Spuds, manufactured by Posey Iron Works, Inc., Lancaster, Pa., are 35 feet long, 20 inches in diameter, and have an inch-thick shell. They are stiffened internally by diaphragms every six feet and are fitted with a fabricated point six feet long. Swing cables are held by 1,000-pound Danforth anchors.

Eugene Luhr Co. supplied the two large draglines used on the job. The largest is a Manitowoc 4500 weighing 340,000 pounds which was shipped from Cape Girardeau, Mo., on six railroad cars, one of which was a special car for the 230,000-pound center section.

Since there was no bridge strong enough to support the machine south of the river, this dragline was unloaded and assembled at Swatara, Minn., the closest siding north of the Mississippi River. The machine was unloaded and assembled in a week, then walked the 35 miles to the construction site in two days. Moving the machine to the job site was done during the winter of 1952 when the ground was sufficiently frozen to support the dragline's weight without damaging roads.

The second dragline is a Link-Belt K595 which was hauled to the job from Clearbrook, Minn., in four truckloads. About a week after it arrived at the job, it had been assembled and was ready to work.

#### Pilot Channel

Clearing of 170 acres of mixed timber up to 20 inches in diameter was done by hand crews using chain saws. An International TD-24 and a Caterpillar D6 equipped with dozers aided in the operation. Trees were cut flush with the ground on berms and a foot above ground in disposal areas. Merchantable timber was salvaged and turned over to land owners living nearby.

Diversion of the Little Willow River so that a measure of flood protection would be provided while the job was in progress was the

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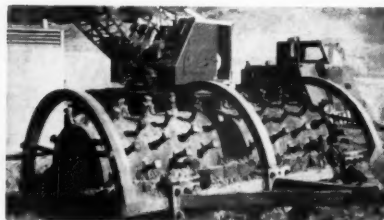
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## PROVES

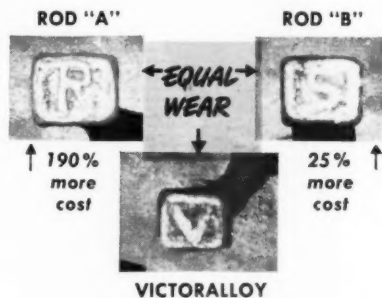
# VICTORALLOY

## CUTS HARDFACING COSTS

HERE'S EASY WAY TO MAKE TEST. . . Hardface an equal number of "feet" on a sheep's foot tamper, as this contractor did, with the different rods you want to test. (You could use bucket teeth or tractor rollers for the test, too). Position test teeth so each sample gets equal wear. Identify each rod by welding a symbol on its test samples.



MAKE A TEST "RUN", then check results. These unretouched photos show what this test revealed: equal wear, yet rod "A" cost 190% more, rod "B" 25% more than VICTORALLOY!



VICTORALLOY'S wearing qualities, ease of application and low cost saved this contractor a minimum of 25% in hardfacing cost!



Fred Anderly, left, is project manager on the flood channel job. Tutt Herron, right, is superintendent of dragline operations.

CONTRACTORS AND ENGINEERS



first goal. The Link-Belt dragline, using a 3-yard lightweight Hendrix bucket, cut a pilot channel 80 feet wide at the top, 30 feet wide at the bottom, and to within 12 feet of the finished bottom grade. This channel started at the main channel outlet and continued on the south side of the channel center line for about 2¼ miles to the intersection with the Little Willow River. This operation also lowered the water level in a swampy area and permitted the ground to dry out sufficiently to support the equipment.

With the pilot channel complete, the Link-Belt dragline returned to the start of the project and made another pass, taking out the upper portion of the cut from the pilot channel to the south bank of the finished section.

#### Dragline Takes Top Cut

When the Manitowoc dragline arrived on the job, it began excavating the top portion of the north half of the channel. In this way, the channel was excavated to its full width and to within 12 feet of finished grade. This last 12 feet was removed by the dredge.

The finished channel section consists of an excavated center channel averaging 210 feet wide at the top, 90 feet wide at the bottom, and 20 feet in depth. On either side of this trench is a flat berm, either 40 or 60 feet wide, depending on the soil conditions in the particular reach. The spoil banks lie beyond this berm and are graded by dozers to a maximum height of 8 feet above the berm. The slope of the spoil bank on the channel side is 3 to 1, and on the outer side it is 4 to 1.

It is at least 165 feet from the center line of the channel to the near edge of the spoil bank. Long booms on the draglines make it possible to cast the material without re-handling. The Manitowoc dragline uses 120 feet of boom with a 6-yard bucket and 140 feet of boom with a 5-yard bucket. The Link-Belt has 85 feet of boom.

#### Dredge Deepens Channel

When the draglines have removed the first cut, the Gopher moves in to complete the bottom 12 feet of the channel. All or most of this cut is normally below water level. Since there is so much variation in water level, the river gage is read twice daily to keep the dredge operating at the proper bottom elevation.

Landings are prepared at 500-foot intervals along the channel. Approaches, sloping from the top of the berm to water level, are graded by a Caterpillar D6 tractor-dozers. Discharge pipes are installed one landing in advance. When this line has been extended to 600 feet and the dredge has excavated earth within its reach, the pontoon line is disconnected and the line attached to the new landing. The change can be made in one and a half hours.

While the dredge excavates the next 500 feet, the shore crew removes the pipe from the last landing and moves it ahead to the next. An Oliver Cletrac OC3 tractor with special sand tracks made by bolting 29-inch pieces of oak 2 x 4 to the regular tracks moves the pipes over

the soft sand berms where other vehicles would bog down. A pointed cap with tow chain attached fits over the end of the pipes to prevent their digging into the ground when being pulled by the tractor.

Pontoon sections consist of a 30-foot length of Naylor spiral pipe attached to two floats, each 40 inches in diameter and 10 feet long, made for this purpose by the Minneapolis

Tank & Manufacturing Co. Good-year rubber sleeves connect the sections at the dredge and at the elbow opposite the landing to permit enough deflection for the swing of the dredge.

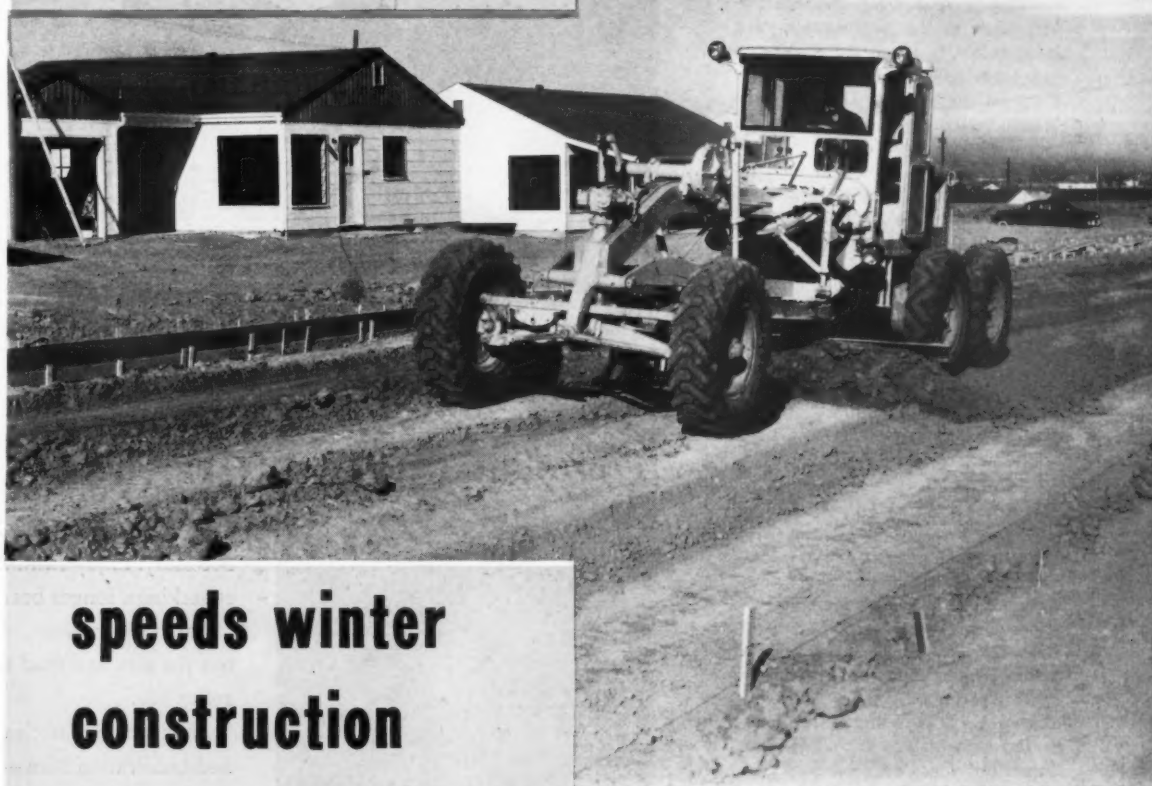
Digging through the clay makes for difficult dredging, but this is increased even more by the number of rocks imbedded in the clay. Small stones are picked up by the pump

and discharged through the pipe. Larger sizes, which run up to 6 feet, are buried below grade in a deep hole in the channel bottom. Rocks larger than 6 inches in size are rejected by a bar welded across the opening of the suction line.

Working 3 shifts 6 or 7 days a week, the three machines move 14,000 to 15,000 cubic yards of mate-

(Concluded on next page)

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Even in midwinter the work goes on, thanks to Caterpillar machines. Cat D6 and D4 track-type Tractors rip up the frost. Then the No. 12 shown above moves in to do the grading and finishing.

Less down time is just one reason why contractors choose the No. 12 Motor Grader. In addition, it's the only machine of its kind built throughout by one responsible manufacturer and backed by one reliable service source. Operators like the easy way it handles, with ample power and sure traction. The blade can be adjusted through the full range of positions in less than a minute, without

leaving the cab. And job visibility is excellent. The driver doesn't have to stand up to see what he's doing.

See a No. 12 in action on your own job. Check its production by the watch. You'll find this husky machine does *more* work in *less* time. Your Caterpillar Dealer will demonstrate any time you say. Give him a call today.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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(Continued from preceding page)  
rial daily. Of this amount, the dredge moves about 4,500 yards per day with the Link-Belt and Manitowoc draglines, averaging 3,500 and 6,500 yards respectively.

The hull of the Gopher has a capacity of 7,000 gallons of fuel oil, which is about a two-week supply. Shell No. 3 diesel fuel is delivered to a landing about 6 miles from the dredge in 5,600-gallon truck transports, then transferred to a 4,000-gallon fuel barge. This barge is towed between the landing and the dredge by the towboat Dutchess.

The towboat, which handles the pontoon lines and serves as a tender for the dredge, is 28 feet long, 8 feet wide, and 4 feet deep. The Dutchess has a 150-hp Nordberg diesel engine which drives a 36-inch propeller through a 3.32 to 1 reduction gear.

Fuel for the draglines is supplied by a 4 x 4 Chevrolet truck equipped with dual tires in both front and rear. This truck, carrying a 500-gallon supply tank, is able to operate over the soft sandy spoil banks and swampy peat land to supply the draglines wherever they may be working. A 9,000-gallon reserve fuel tank at the contractor's yard is supplied by truck transports.

A useful piece of auxiliary equipment on the job is a Dodge Power Wagon equipped with a front winch and a 20-foot front-mounted boom. This truck moves the swing anchors for the dredge; loads pipe, pontoons, and other heavy pieces; and assembles and dismantles pipes at the landings.

A Chevrolet panel truck equipped with gas and electric welding equipment is in constant use for patching pipe, building up and hardening cutter teeth, and other maintenance jobs. A shop building near the job site houses the large draglines for maintenance during the winter season.

#### Personnel

Fred Anderly, president of Midwest Dredging Co., is project manager of the job, and Tutt Herron supervises the work of the draglines. Mrs. Anderly is office manager. Vern Holmstrom is construction inspector for the Corps of Engineers. The project is being carried out under supervision of the St. Paul district of the Corps of Engineers, of which Col. A. H. Bagnulo is district engineer.

THE END

#### NYU Construction Course

The evening course in "Business Problems of Building Construction" will be offered during the 1954 spring term at New York University's Division of General Education, 1 Washington Square N., New York 3, N. Y. Morris Liebeskind, deputy superintendent of the Bureau of Plant Operation and Maintenance, New York City Board of Education, will instruct.

The class, designed for those engaged in building construction, management, and operation, will meet from 6:15 to 8 p. m. on Mondays, February 1 to May 24. Registrations will be accepted between January 18 through February 5.

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■ A front-mounted telescopic truck hoist marketed by the Hercules Steel Products Corp., Galion, Ohio, is designed for heavy-duty dump truck bodies 11 to 15 feet long. The 20-ton unit shifts the hoist-weight forward so that more load is on the front axle.

The hoist is manufactured for single or tandem-axle straight trucks. The manufacturer reports that it is easily mounted with no part extending below the truck frame.

For further information write to the company, or use the Request Card at page 18. Circle No. 559.



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# TEXACO

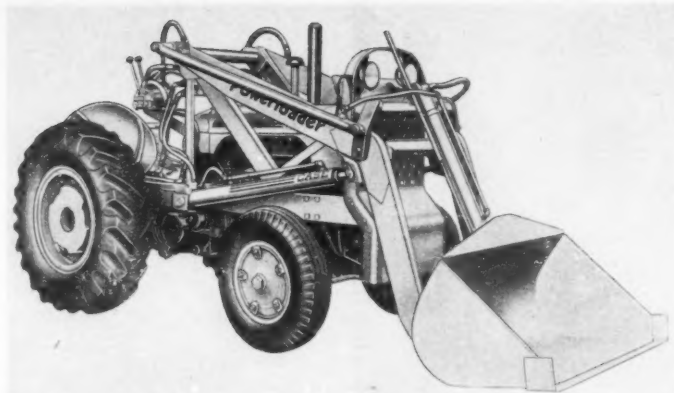
CONTRACTORS AND ENGINEERS



## Front-End Loaders

■ Two models of front-end loaders are announced by the J. I. Case Co., Racine, Wis. The Powerloaders are built in two sizes, Models 30 and 40, with basic bucket capacities of  $\frac{5}{8}$  and  $\frac{3}{4}$  yard respectively. Both models have more than 10 feet clearance under the bucket at full height and more than 8 feet when dumped. Digging depth with bucket tilted is more than 2 feet.

The hydraulic systems of both models work at 1,000 pounds pressure. The buckets lift full height from the ground in  $6\frac{1}{2}$  seconds, lower in  $4\frac{1}{2}$  seconds, and dump in 2 seconds. A sight gage indicates what the angle of the bucket will be when it reaches the ground level. Thus the operator can set the bucket during its descent, avoiding delay



The Model 30 Powerloader with a  $\frac{1}{2}$ -yard bucket is one of two models offered by the J. I. Case Co.

for adjustment before loading.

All hydraulic cylinders, both lifting and dumping, are double acting,

providing positive crowd. The manufacturer reports that the down-crowd is strong enough to lift the

front wheels off the ground. Toggle action, due to the position of pivot points, provides an automatic down-crowd in digging position, and face-crowd when scooping up. The power units around which the Powerloaders are built are essentially the Case Models SI and DI tractors.

For further information write to the company, or use the Request Card at page 18. Circle No. 635.

## Abrasion-Resistant Sheets of Rubber

■ Protective rubber sheeting said to combat abrasion and corrosion on equipment normally subjected to excessive abrasive wear is announced by the Magic Chemical Co., 121 Crescent St., Brockton 2, Mass. The sheeting can be used on chutes, hoppers, ducts, and pipes, and on equipment such as shaking tables and shaker screens.

Iron-Rubber is available in two types, reinforced and nonreinforced. The reinforced type is composed of two sheets of rubber bonded to a central core of expanded steel. This type of sheet can stand on edge without buckling, can be bent to fit corners without spring-back, and can be shaped to fit practically any contour. The nonreinforced type is a single sheet of rubber and is much more flexible. The product can be made in any thickness and to any length up to 36 inches wide.

For further information write to the Company, or use the Request Card at page 18. Circle No. 650.

## Gage for Fuel Tanks

■ A remote-reading tank gage for use with vented fuel oil, gasoline, and diesel oil tanks up to 9 feet deep is announced by the King Engineering Corp., Box 310, Ann Arbor, Mich. The gage has an etched aluminum scale plate with four different scales. Only one scale is visible at any time. If the grade of fuel is changed, the plate is easily turned to bring the proper scale into reading position.

The Keco gage works as a frictionless hydrostatic balance and has no mechanical moving parts except a small air pump built into the case. Installation entails mounting a  $\frac{1}{2}$ -inch pipe in the tank, placing the gage on a wall or column, and connecting a  $\frac{1}{4}$ -inch copper tube from the tank to the gage.

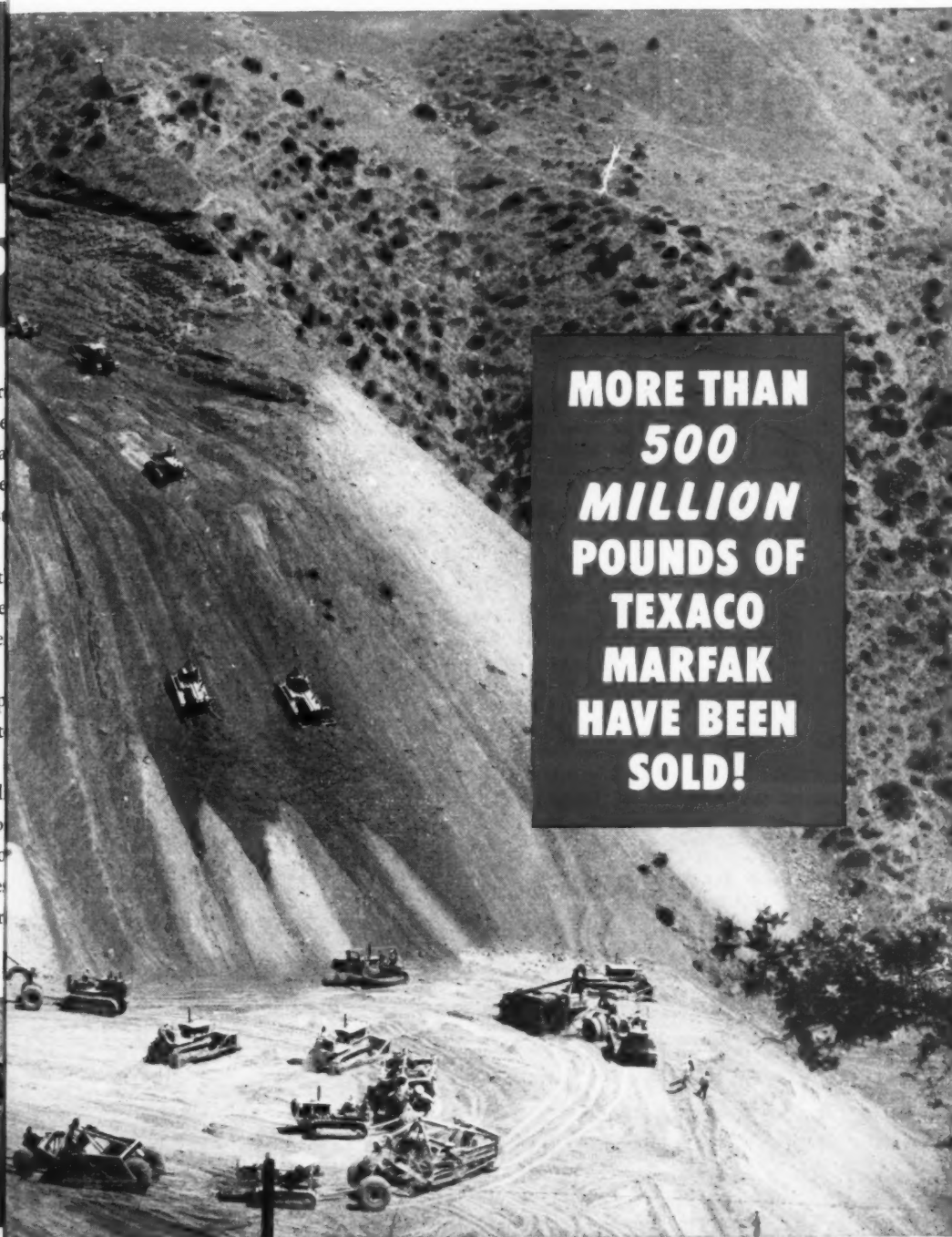
For further information write to the company, or use the Request Card at page 18. Circle No. 618.

## Hydraulic Research

The third edition of "Hydraulic Research in the United States", edited by Helen K. Middleton and Sonaya W. Matchett, National Bureau of Standards, contains up-to-date information compiled from reports by the various hydraulic and hydrologic laboratories in the U. S. and Canada. A large number of the projects listed are reported for the first time.

Reports on private, university, and Government-supported research are included.

The book at \$1.25 can be had from the Government Printing Office, Washington 25, D. C.



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# Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT



Cement is loaded into one of the Baughman self-unloading tanks through a Johnson transfer plant. The tank is mounted on an Athey track wagon and pulled by a Cat D8.



The other Baughman tank, mounted on a LaPlant-Choate track trailer pulled by a Caterpillar D8, spreads cement.

# Sand Stabilized with Portland Cement

By RALPH MONSON, Field Editor

*Special equipment used to build 6-inch compacted soil-cement base course for Wisconsin highway*



Blades at the rear of the Roadmixer level the mix on the roadbed. The Caterpillar D6 at the left compacts the mix.

A miniature two-blade drag, made of scraps of steel and chain, removed the ridge of sand created by the dual wheels of the Roadmixer.



THE FIRST MAJOR USE in Wisconsin of cement-stabilized sand for a highway base has been made by the Wisconsin State Highway Commission on a 21½-mile section of State Highway 54, between Black River Falls and City Point. Compaction by a light roller was in sharp contrast to the multi-ton equipment often used on other types of base materials.

After compaction, the 22-foot-wide base measured 6 inches in depth. The stabilization job was done by the John Dieseth Co., Fergus Falls, Minn. Work started June 11, 1953, and was completed within the 90 days allowed by the contract.

In this sandy area of west central Wisconsin, by-passed by the glaciers which covered most of the midwest thousands of years ago, there is little or no gravel or clay—only peat in the lowlands and sand in the highlands. Under a 1952 grading con-

tract, the new road was cut through the sand hills and across swamps, shortening the distance between Black River Falls and City Point by several miles and eliminating many sharp turns.

A base course of fine sand, most of which was obtained from pits in its loose state, was laid. Where pit sand was unavailable, sand rock from the highway cuts was pulverized. The relatively fine material was loosened with rippers and by blasting, which broke most of the pieces down to the sand particle size. Further pulverizing with Seaman Pulvi-Mixers reduced the remaining chunks to the proper size. All of this material was then able to pass the No. 10 screen and more than 30 per cent went through the 100 mesh in some samples.

Because the highway will not be used as a main thoroughfare, the roadbed width was held to 32 feet.

A Ford tractor with a farm-type weeder meets the compacting D6. The weeder loosens the top 2 inches of mix and eliminates wheel tracks.



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AF... fin...





Special outriggers on the wheels of the Wood cement spreader help develop traction in the loose sand.



Water is supplied to the Wood Roadmixer by one of the two 4,000-gallon tanks on Athey Forged-Trak trailers drawn by Caterpillar D8's.

Slopes were surfaced with peat soil obtained from swamp excavations and were straw-mulched and seeded by the grading contractor. When the grading was completed, the base course was nothing more than loose sand a little over 6 inches deep. Since it would not support rubber-tired vehicles, Dieseth had to use tracks on the equipment using the road ahead of the stabilizing operation.

Railroad carloads of bulk cement were first received at Black River Falls and later at a Green Bay & Western siding at Pray, where a Johnson track plant unloaded an average of 2½ carloads per day. The cement was transferred into six Ford F-6 dump trucks which hauled to a transfer station near the job site.

The track plant had a storage capacity of 80 barrels, which served to absorb the surge between trucks and to keep the unloading conveyors operating efficiently. An American 15-ton truck scale was located directly under the cement hopper to weigh out 8,000-pound batches of cement for each truck load.

From the track plant at the railroad siding, the cement was taken to a second Johnson cement transfer plant near the point of operations. The trucks hauled the material over local, unsurfaced, sand roads, many of them little more than trails through the woods. Capable of supporting the normal traffic of lighter vehicles, these roads soon broke up under the steady pounding of the heavy trucks. Even with continuous blading by the contractor, they were barely passable.

The second Johnson plant received the bulk cement from the dump trucks and transferred it to Baughman self-unloading cement tanks mounted on Athey and La Plant-Choate track trailers. Each tank handled three truck loads for a total of 24,000 pounds. The weight was regularly and carefully checked

against the spread of the load on the roadway to maintain the proper percentage of cement in the mix.

The cement transfer plant was designed for easy portability. It could be quickly loaded on a standard dump truck and moved to a new location. This was done every third day as the work advanced, so that the work was always within easy tractor hauling distance of the plant. At the same time, the plant was always located on a road which would support the dump trucks.

#### Spreading Cement

Each of the two cement tanks was pulled to the grade by a Caterpillar D8 tractor. There, a Wood cement spreader was coupled to its rear and unloading screws in the tank fed the cement into the spreader's hopper. The spreader applied the cement to the grade in a uniform windrow 4½ feet wide at the rate of 57 pounds per linear foot. The spread was controlled by a mechanism driven by the spreader wheels. Two windrows of cement were laid, one for each half of the roadway.

There was so much slippage of the rubber-tired spreader wheels in the soft sand that they had to be fitted with a series of steel fins. Similar to the paddle wheels on a river steamer, these outriggers developed enough additional traction to operate the spreader within reasonable limits. Alternately using the spreader, the two tanks were able to keep a windrow of cement ahead of the mixer. Hauling and spreading operations started at 4:30 a. m. and ended shortly after 1 p. m. Mixing started at 5:30 a. m. and continued until about 3 p. m. Finishing operations ended as late as 6 p. m.

#### Water Pumped From Pits

Optimum moisture content for the processing was found to be from 7.3 to 9.3 per cent. Cement content was maintained at between 10 and 11 per cent. With almost as much water as

cement having to be hauled, it was fortunate that ground water was found very close to the surface along the route. A Bucyrus-Erie 10-B backhoe dug sump holes in low areas along the right-of-way. These quickly filled with water, and three Rex 3-inch pumps, mounted on trailers and fitted with standpipes for unloading convenience, pumped from the sumps into the water supply trucks. As the job progressed, the pumps were moved from one hole to the next by jeeps or pickup trucks, thus keeping the water source close to the mixer.

The water trucks consisted of two 4,000-gallon tanks mounted on Athey Forged-Trak trailers drawn by Caterpillar D8's. In emergencies, the mixer was supplied from a 2,000-gallon tank mounted on an International 6x6 truck. The truck's rear dual wheels were fitted with tracks. There were also dual wheels on the front, enabling the truck to travel from the water holes, over the sand grade, to the mixer.

Two other International 6x6's, with 1,800 and 2,500-gallon tanks, were used to supply water for the finishing operation, when necessary, and for other incidental tasks. These trucks traveled on the completed base and carried half loads so as not to overload the fresh soil-cement.

#### Mixing Machine

A Wood 54 Roadmixer blended the sand and cement on the roadbed and added the proper amount of water.

The mixer pugmill was pulled along the grade by a Caterpillar D8, which also supplied power for the pugmill through a power takeoff.

Blades on the front of the Roadmixer gathered in the proper amounts of sand and cement and fed them into the pugmill for blending. The depth of the blades, or wings, was controlled by an adjustable shoe depth gage. Water was added and the finished mix flowed out of the rear of the pugmill, where additional blades leveled it for compaction.

Water was transferred from the trailer tanks to the mixer while the machine was in motion, without interrupting the process. During the operation, the trailer tank traveled ahead of the mixer tractor. A long hose, suspended from a special hook on the D8, connected the trailer tank with the mixer tank. The latter had a 1,000-gallon capacity, eliminating any wait while the changeover between an empty trailer tank and a full one took place.

The mix was uniform in texture and appearance. It was spread to a carefully measured depth of 7¾ inches, as this was found to compact to exactly 6 inches. A minor problem was created by the rear wheels of the Roadmixer, which had a tendency to sink into the sand subgrade a bit, forcing up a small ridge between the duals. It was feared this ridge might leave a weakened section.

To eliminate the ridge, a work-

(Concluded on next page)



After compaction by the D6, a Caterpillar No. 12 motor grader brings the roadway to finished shape in preparation for the final rolling.



Robert Dieseth, left, project superintendent inspects a specimen of the mix while W. A. Roarig, project engineer for the Wisconsin Highway Commission, looks on.

This International 6x6 truck equipped with tracks over the rear wheels and dual front wheels supplied the paver with water in emergencies.



## Soil Cement Base For Highway Project

(Continued from preceding page)

man, using his foot or a shovel, carefully leveled it. A miniature road drag, made of a few scraps of iron and chain welded together, later gave the same results.

Initial compaction was done by a Caterpillar D6 tractor traveling back and forth over the mix in high gear. This was found to produce satisfactory densities in the bottom 4 inches. A Ford tractor with an agricultural weeder attachment then scratched the surface, loosening up the top 2 inches of mix to remove the surface

compaction planes. A Caterpillar No. 12 motor grader put the final shape to the road.

After the grader wheel tracks were removed with a broom drag, the Ford tractor rolled the surface using a Bros 13-wheel pneumatic-tire roller with only two pounds of pressure in the tires and without any

ballast. This was found to compact the surface without disturbing the underlying material.

Final finishing utilized the motor grader, the roller, and a drag broom. On hot, dry days water was added during the finishing to prevent excessive drying out of the surface. The day after the mix was placed, a seal coat of emulsified asphalt, RS-2, was applied at the rate of 0.2 gallon per square yard, to retain water for the curing. The seal was applied by a Rosco distributor mounted on an International truck. It was blotted sufficiently by a light layer of sand laid by a dump truck with a tail-gate spreader to permit the operation of service equipment over the road.

### Personnel

Averaging nine-hour days, weather permitting, the crew completed about 3,000 linear feet of roadway per day. Robert Dieseth was project superintendent for the contractor. Harold Sander was foreman of the cement spread and water operations, while Stanley Dare was mixing foreman. Finishing was supervised by Oliver Samuelson. A maximum of 56 workmen was employed.

W. A. Roarig was project engineer for the Wisconsin State Highway Commission, and David Strand was materials engineer. A. J. Engelke, assistant construction engineer, supervised the project for the district office. T. M. Reynolds is district engineer, and E. L. Roettiger is state highway engineer.

THE END

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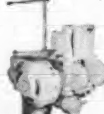
The Price you pay for equipment and maintenance divided by Yardage produced times Endurance equals the actual Cost. Wooldridge has specialized in premium quality machines that represent sounder, more profitable investment because they produce more per dollar and man-hour—with less downtime. Thousands of units still in use after up to a decade or more of constant service testify to their ruggedness, practical simplicity, and years-ahead engineering.\* In an industry which demands increasingly productive earthmoving tools, Wooldridge has progressively prospered because job-wise contractors recognize the long-range profits which advanced premium quality equipment assures.

Investigate the complete new 1954 line of Wooldridge high-speed Terra Cobra earthmovers and open bowl scrapers before you buy!

\*WOOLDRIDGE made high speed self-propelled scrapers safe and practical by first introduction of positive hydraulic steering, air brakes, remote controlled winch, to name only a few. Ten-speed transmission on 2-wheel tractors is among recent firsts...still exclusive. Wooldridge also pioneered boiling bowl loading, positive "Roll-Out" ejection and other basic scraper design features.



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CONTRACTORS AND ENGINEERS



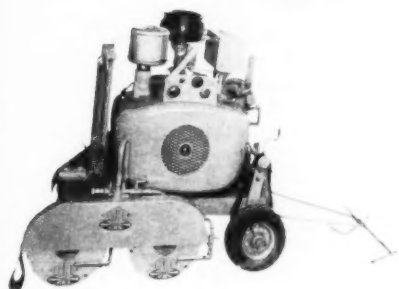


# CUTCRETE

## Trail Blade CONCRETE SAWS



BY THE ORIGINATOR OF MOBILE CONCRETE SAWS — HURST LEWIS



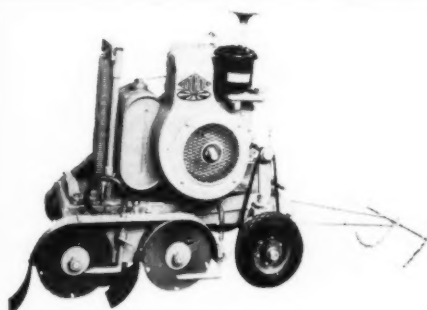
### MODEL SUPER S-T-T

A heavy-duty step cutting, 26 h.p. engine machine with 12" blade capacity, 4" depth cutting at twice speed of single blade machine.



### MODEL J-T

A single blade 8 h.p. engine, light machine for small sawing jobs.



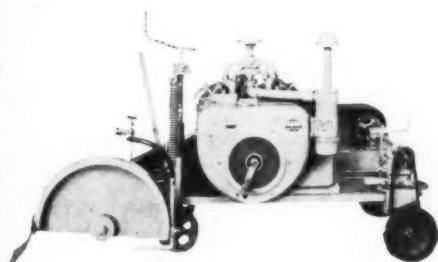
### MODEL S-T-T

Standard 14 h.p. economical step-cutting machine, 10" blade capacity with a 3" depth cutting at twice speed of single blade machine.



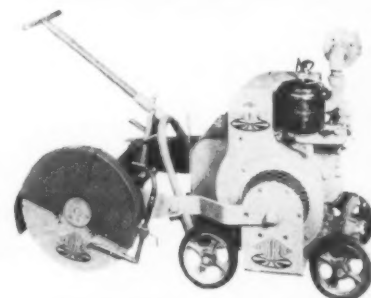
### MODEL AP

Equipped with 8 h.p. engine. The all-purpose saw, 180° adjustable arc. Saws overhead in either direction, flip-over blade for sawing into all corners, 12" blade capacity, 4" depth sawing.



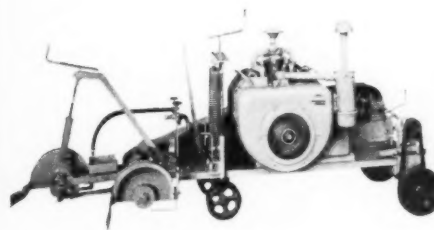
### MODEL S-T-S SINGLE

Heavy-duty single blade, 25 h.p. engine, 24" blade capacity, 10" depth sawing. Used on bridges and industrial flooring where a sharp, clean faced cut is required.



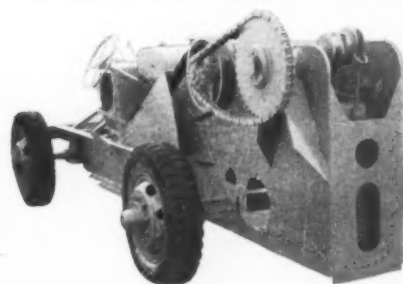
### MODEL APHD

Equipped with 14 h.p. engine, the heavy-duty all-purpose saw. 180° adjustable arc, saws overhead in either direction, flip-over blade for sawing into all corners, 18" blade capacity with 7" depth sawing.



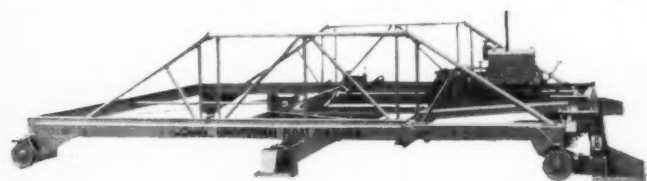
### MODEL S-T-S DUAL

A 36 h.p. engine, dual blades trailed for trench cutting, will cut widths from 1" to 5 feet with a depth of 4". 14" blade capacity, 5" cut.



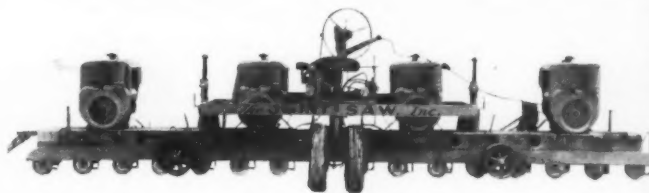
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A non-pneumatic breaker driving a 1000 lb. weight at 60 strokes per minute at 18" drive. Breaking capacity 10". Interchangeable tamping, cutting and breaking heads.



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A 25-foot wheelbase concrete float finisher with rear screed suspended midway between the two axles.



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A multiple-blade concrete saw for sawing weakened plane joints in highway and airport runways, aprons and taxiways, 8, 12, 16 blades in tandem, widths from 10 to 25 feet.

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The Sierra Loader is teamed up with Caterpillar equipment on an earth-moving job.

Announcing  
Major Advance in  
Tractor Design!

# New Caterpillar oil-type flywheel clutch

now standard in the **D8, D7 and D6!**

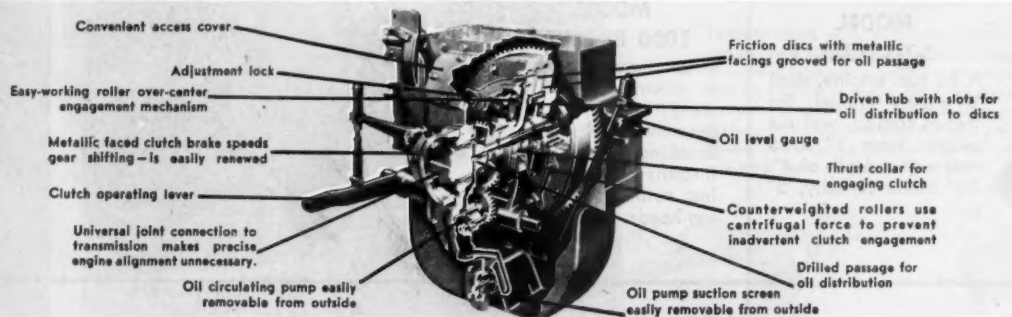
Once again Caterpillar leads the field in an advance that boosts production, cuts down time and lowers operating costs. The new oil-type flywheel clutch, now standard in the Cat\* D8, D7 and D6 Tractors, means a new high in money-making performance for you from these three rugged machines. Exhaustive on-the-job tests prove that this clutch lasts many times longer than other clutches under identical conditions. They also prove it enables you to run these tractors two to four times longer before making clutch adjustments.

Here's how it works. The oil system is entirely separate from that of the engine. While the engine is running, the oil pressure flows to all working parts of the clutch. Oil is fed constantly through the radial and circumferential

grooves in the friction discs even when the clutch is engaged, thus cooling the friction discs and pressure plates at all times. As a result, there's minimum opportunity for wear and heating to take place. That's why adjustments are very seldom needed and disc replacement normally required no more often than engine overhauls. For easy access, the clutch has a dirt-proof housing with a big opening at the top—a mechanic doesn't have to disturb engine or transmission to get at it.

Get the whole picture from your Caterpillar Dealer. Remember, he backs all sturdy yellow equipment with genuine parts service—there's never an "orphan" in the Caterpillar line. Ask him to demonstrate on the job!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



New Caterpillar oil-type flywheel clutch gives you greater dependability and lower service and maintenance costs than any other clutch under identical conditions, normal or tough.

## CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—®



### Conveyor-Type Loader

■ A self-powered conveyor-type loader is made by the C & D Mfg. Co., Folsom Blvd., Perkins, Calif. The Sierra Loader, teamed with a Caterpillar D8 tractor, has a 27-foot conveyor that is raised or lowered through a power-control unit lever. A feature of the loader is that it permits good visibility, enabling the operator to maintain the right height for high or low-side loaders. Underside scrapers keep the belt cleaned even in gumbo or muck. The power unit is the 100-hp Caterpillar D318 diesel engine.

The loader has a 42¼-inch disk plow and a conveyor mounted on the same hinged beam. This provides 6-ton down pressure on the plow and keeps the plow-conveyor spacing constant regardless of the digging depth. The plow works with a slicing action, and the disk can be rotated to four positions to extend its life.

Digging depth and conveyor height are controlled by the hauling tractor's dual-power control unit. The conveyor drive-clutch lever also mounts at the tractor seat. The turning radius of the loader and tractor is said to be the same as for a tractor-scraper combination. The axle extension is removable to give a 9-foot 6-inch width for highway transport.

For further information write to the company, or use the Request Card that is bound at page 18. Circle No. 571.

### Bituminous Spreader

■ A lightweight bituminous spreader is the subject of new literature from the I. J. Overman Mfg. Co., Box 233, Marion, Ind. The spreader lays stone, gravel, shale base, and hot or cold asphalt mix. Pulled behind a dump truck that drops material into the unit's 3-ton hopper, the spreader lays a smooth, compacted course. The width of the lay can be cut off every 6 inches from either end of the hopper.

Other construction details covered in the literature include the dual vibrators that have been added to the machine. The spreader is made in three sizes with laying widths of 4 to 9 feet, 5 to 10 feet, and 6 to 11 feet.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 652.

### Marlow Appointments

Covering the four-state mid-Atlantic district for Marlow Pumps, Ridgewood, N. J., is newly appointed district engineer Maurice C. Bickert. He will handle southern Pennsylvania, New Jersey, Delaware, and Maryland, and will make his headquarters at the home office of the firm.

Roger Vannelli has been appointed district engineer for Virginia, West Virginia, and North Carolina. He will make his headquarters in Raleigh, N. C.

John L. North has been named assistant to the sales manager and will also make his headquarters in Ridgewood.

CONTRACTORS AND ENGINEERS

## Develop Lightweight All-Ceramic Block

A lightweight all-ceramic building block which is said to possess many advantages over the common cement block has been developed by the Armour Research Foundation of the Illinois Institute of Technology, Chicago, Ill. It was perfected by the foundation's ceramics minerals department in a project sponsored by the Arabian American Oil Co., New York City. The new building block promises to solve the problem of low-cost housing in Saudi Arabia, according to its developers.

The block is entirely ceramic and contains no portland cement. It is composed of 90 per cent bloated clay bonded with fused clay. It is a standard size 8 x 8 x 16-inch three-cavity unit. Besides its light weight—it weighs only 22 pounds—it is reported to have a conductivity of 0.3 Btu or less per square foot of wall area, it will not crumble or chip, its compressive strength is 1,000 psi, and, because of a 12 to 16 per cent porosity, it is able to "breathe" and will not sweat.

The block has good sound-absorbing qualities and can be cut or trimmed easily. Nails can be driven securely into it, thus eliminating the mailing blocks which must be used with cement units.

The block was developed from Arabian clay by ARF scientists. The clay is converted into a bloated aggregate by heating on a fixed grate, a traveling grate, or a rotary kiln. The aggregate is then crushed and graded and the various sizes recombined to produce the desired working properties and finished product characteristics.

Raw clay, which may be the same as that from which the aggregate was made, is then added. From 10 to 30 per cent of the mixture is raw clay. Water is added and the batch is mixed in a concrete mixer. The blocks are molded in an ordinary concrete block machine. They are fired, or matured, by conventional ceramic methods.

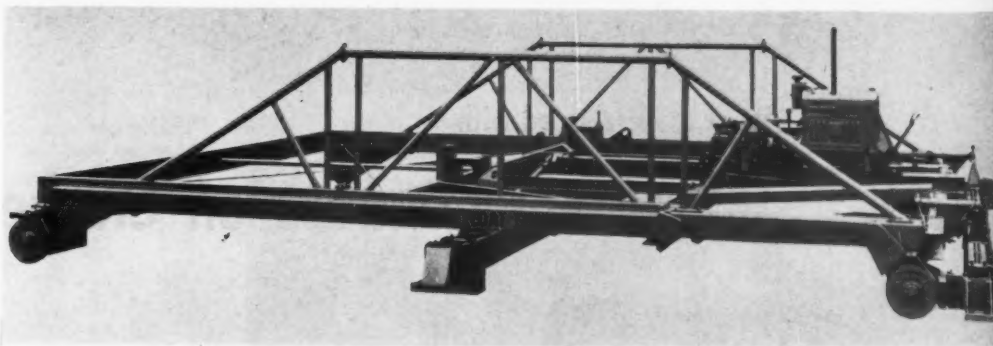
Work in developing the building unit was begun by the ARF in 1952. The Arabian American Oil Co. was seeking an economical unit which could be produced in Arabia from native materials, thus avoiding the high cost of importing structural clay products, portland cement, and steel.

## Rigid Plastic Pipe

Lightweight rigid plastic pipe and slip-sleeve fittings are announced by Alpha Plastics, Inc., W. Orange, N. J. The pipe can be adapted to a wide variety of applications where corrosion from alkalis and acids is a problem. The plastic used is polyvinyl chloride resin. The smooth hard surface of the plastic pipe, it is pointed out, increases flow which often permits the use of smaller pipelines than possible with metal pipes.

The new slip-sleeve fittings are cemented to the pipe with a special solvent cement which is applied by brush, affording quicker installation. The company claims the connections are equal in strength to any other part of the pipe.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 653.



The Lewis Longitudinal float finisher is a new machine for use in the finishing of concrete pavements. It is made with a combination side form two-screed transverse-action finisher. The model illustrated has a wheel base of 25 feet with the rear screed suspended midway between the two axles. A smoothing iron to the rear of the strike-off runs the full width of the pavement. The finisher is made in widths of 10 to 25 feet. For further information write to Hurst Lewis, 265 N. Vinado Ave., Pasadena 8, Calif., or use the Request Card at page 18. Circle No. 614.



## Double Duty Traffic Marker

gives safety warning day and night... by sound and sight!

This traffic-lane separator not only shows where lanes are... it sounds off with an audible warning when car tires cross over it. It is a corrugated concrete safety strip made with Atlas White Cement set flush with the highway surface. The principle of operation is simple.

**BY SIGHT:** In daylight, Atlas White contrasts strongly with the adjacent pavement so the strip clearly defines traffic lanes. After dark, headlight rays bounce back from the ribbed surface. The strip becomes a ribbon of reflected light... and gleams even brighter when wet with rain, giving

greater visibility when most needed.

**BY SOUND:** The moment a driver ignores the visual warning and turns out of lane, his tires hum or whine on the corrugated surface. The warning is unmistakable day or night.

This sound-and-sight Marker is an effective way to channelize high-speed traffic safely and efficiently. If you are planning a new highway or improving an old one, write for further information to: Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



CLOSE-UP of traffic marker shows corrugations scored in concrete made with Atlas White Cement. The white-ribbed surface reflects light back to driver at night... contrasts by day... sounds off with a distinct hum-m-m when tires roll over it.

ATLAS®

WHITE CEMENT

For Concrete Reflecting Curb and Markers



CE-TM-16

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station.



Rural road salvaged with

## Bituminous Concrete on Crushed-Stone Base

PLANT-MIX bituminous concrete on a built-up crushed aggregate base is being used extensively in Pennsylvania to salvage many of the state's rural highways that are beginning to show their age.

A typical section of road that recently had its face lifted is State Route 267 northwest of Scranton. Built over 25 years ago, the surface-treated macadam pavement, with some stretches of cement concrete,

was wearing out rapidly, and costly maintenance was required to keep it serviceable. And with more and more travelers using the road as a short cut from Wilkes-Barre, Pa., to Binghamton, N. Y., some kind of

improvement was necessary.

Consequently, the Pennsylvania Department of Highways awarded a contract last spring to A. B. Cole, of Meshoppen, Pa., on his low bid of \$390,000. Work began in April and was scheduled for completion by the end of 1953.

The job called for the reconstruction of several deteriorated sections of the road over a 7-mile length. About 28,000 cubic yards of excavation were required to improve drainage, shoulders, and slopes. The two other big items requested were 20,000 cubic yards of crushed aggregate base and 12,000 tons of bituminous concrete.

Cole subcontracted the grading and base work to Irving N. Loomis, of Montrose, Pa. All earth was excavated with Northwest shovels and either used in fills or wasted. Shoulders, constructed 8 feet wide, slope  $\frac{3}{4}$  inch per foot. Embankment slopes are  $1\frac{1}{2}$  to 1.

### Crushed Stone Base

Base material was hauled by about fifteen 10-ton hired trucks and spread over the old pavement. An Allis-Chalmers grader shaped the material to grade. Then stone dust was applied over the stone and worked into the voids while rollers compacted the rock to a 6-inch depth.

After a suitable period, excess

 CONCRETE CARTS	 POWER-CARTS	 FLOOR HOPPERS	 RECEIVING HOPPERS	 DUAL RECEIVING HOPPERS
<h2>Everything FROM MIXER TO FORM</h2>			 COLLECTION HOPPERS	 COLLECTION HOPPERS
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 RUBBER & STEEL CHUTES	 UNIT BATCH PLANTS	 BIN GATES	 TOWER BUCKETS	 SUSPENDED GAR-HOPPER

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Whether the placing job is deep down into the narrow confines between reinforcing steel, or 40 feet under water, or high on the 54th floor of a concrete building, Gar-Bro Concrete Handling Equipment can help you deliver and place concrete easier, faster and better.

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**COTTA HEAVY-DUTY TRANSMISSIONS**

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CONTRACTORS AND ENGINEERS

As part of a road salvaging job on Pennsylvania's Route 267, a binder course of bituminous concrete is laid on a stone foundation by a Barber-Greene finisher.

C. & E. Photo



dust was swept off and a 1½-inch binder course of bituminous concrete was laid by a Barber-Greene finisher. Twelve of Cole's 10-ton trucks hauled the hot-mix about 15 miles from Susquehanna's commercial plant in Montrose, Pa. A Galion 8 to 12-ton tandem roller followed close behind the finisher as a heavier three-wheel Hercules did the final compacting. The 1-inch top course was laid later.

The crushed aggregate base was graded as follows:

Sieve Size	Per Cent Passing
¾-inch	0-5
1½-inch	0-15
2½-inch	25-60
3½-inch	90-100
4-inch	100

The binder course of bituminous concrete used about 5 per cent by weight of 85 to 100 penetration asphalt which was supplied by the Lake Asphalt and Petroleum Co. of Marcus Hook, Pa.

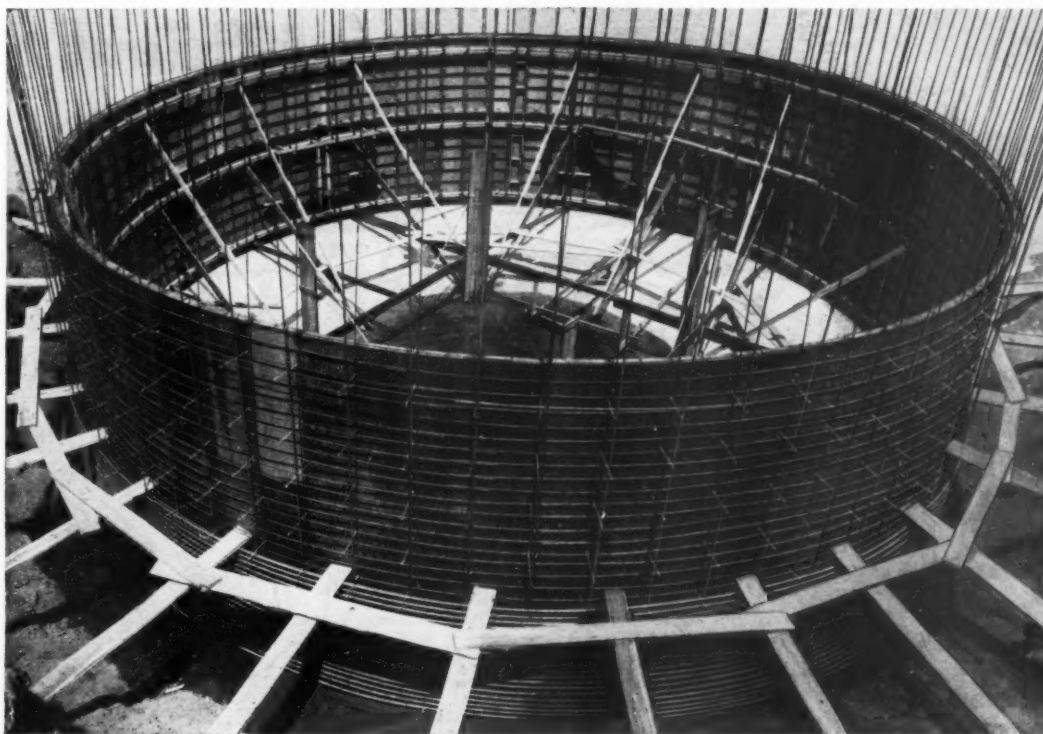
Stone gradations were:

Sieve Size	Per Cent Passing
No. 8	0-5
No. 4	0-10
¾-inch	25-60
1-inch	40-100
1½-inch	100

Stone for the top course, with about 6.8 per cent by weight of asphalt, was graded as follows:

Sieve Size	Per Cent Passing
No. 8	0-10
No. 4	10-30
¾-inch	75-100
1-inch	100

N. H. Baer was superintendent for A. B. Cole. B. J. Harding is district engineer for the Pennsylvania Department of Highways, which is headed by E. L. Schmidt, secretary of highways. THE END



Setting Up Forms for Sewage Disposal Tank, St. Louis County, G. L. Tarlton Co., G. C.

## SYMONS FORMS for CURVED WALLS

Symons Rib panels are used with V-shaped fillers at each joint. Sturdy wedge-bolts secure the three pieces together and also hold the ties in place. Curved walers (see photo) or 1" x 6" flat walers (see perspective) may be used for alignment.

Contractors report savings of \$5000.00 on forming costs of Sewage Disposal Plants. Engineers are well pleased with the smooth finished walls.

Symons offers a complete engineering service to solve your toughest forming problems. Send us the plans for your next job and a complete layout and cost sheet will be furnished without charge.



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CONCRETE BETTER AND FASTER  
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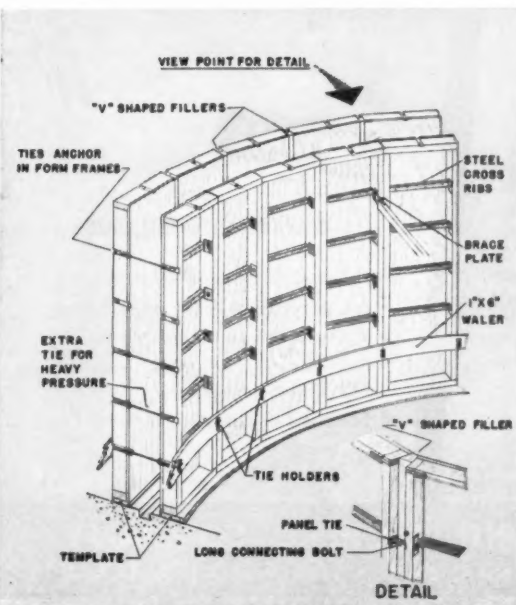
### THE NEW, MORE POWERFUL MIGHTY 1954 MIDGET

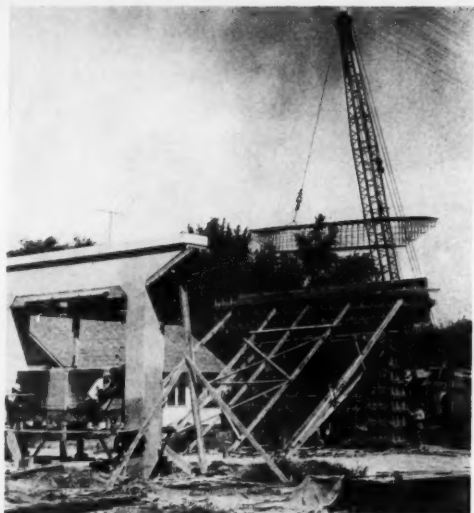
Fastest Pneumatic Concrete Breaker and Backfill Tamper. Replaces all the dirt removed after pipe has been laid.

Gives you high density compaction. Ready to repave immediately. No temporary paving. No spoil dirt to haul away. Due to high density compaction, requires little asphalt in replacement. Cuts cost of tamping and breaking of concrete many times. Can be worked manually or automatically. 160' Compressor for full capacity or 105' Compressor for ½ capacity. For further particulars, see your nearest dealer, or write Department C.

**R. P. B. CORPORATION**

2751 East 11th Street Los Angeles 23, California





## Piles Cast in Field for Concrete Bridge

*Total of 196 reinforced-concrete piles for pier stems cast on job for overpass on U. S. 75 in Oklahoma*

A Marion crane with a 60-foot boom swings a section of steel reinforcing into position for a pier top. In the left foreground, workmen are polishing the stripped concrete.

CONSTRUCTION OF A 1,001-foot concrete overpass with simple I-beam span in Dewey, Okla., to direct through traffic on U. S. 75 over two railroad tracks and several cross streets, solves a major cross traffic problem on the relocation of this important north-south highway.

Industries in the area contribute a heavy flow of cross traffic, mostly trucks, which would have had to be controlled with either four-way lights or stops. With the new structure, designed by the Oklahoma State Highway Department, the through traffic will be speeded over and the slow traffic will go under or use special service roads on each side.

The job is part of a \$3,000,000 regional highway and street improvement program which includes relocation of U. S. 75 and new concrete paving from Bartlesville, northward.

### Overpass

The contract for the elevated structure was awarded to Gragg Construction Co., Inc., Henryetta, Okla., on a low bid of \$329,000. Work started March 10, 1953, with a field setup for casting reinforced-concrete piles on the job for the pier stems.

The structure is designed for H-20 loading and consists of 24 steel beam spans varying in length from 30 to 55 feet. The abutments and piers are supported on piles driven to shale foundations, with 15 piles under each abutment and 8 under each of 22 of the 23 piers.

Pier 13, the master pier, consists of two hexagonal columns on round bases with 10 piles under each base. Spanning the columns is a 36-inch WF 300-pound steel beam which extends over the two railroad tracks. It supplies end support for the stringers of the adjacent spans. Bases for Pier 13 are 13 feet in diameter and 4 feet thick. The hexagonal columns are 28 feet high from the top of the base and are centered 50 feet apart.

Also supporting the span are two hexagonal columns of reinforced concrete. Each is flat, 4 feet wide, and 32 feet high from the top of a 13-foot-diameter circular footing to the cap.

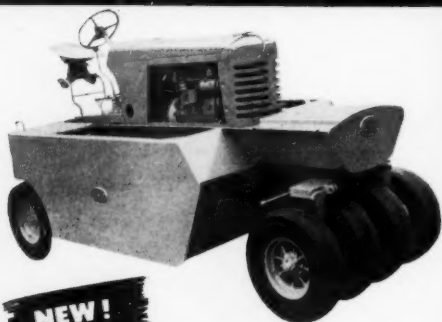
### Concrete Piles

Each of the 22 piers has four 16 x 16-inch reinforced-concrete piles driven to refusal under each of its two stems. Ten piles were driven for each of the two hexagonal columns, making a total of 196. They were all cast on the job in conventional plank forms.

Driving started after half the piles had been cast and cured. A Vulcan

## TAMPO for Efficient COMPACTION

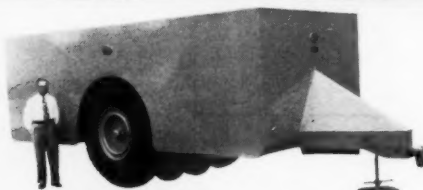
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- ★ Hydraulic steering ★ Water Sprinkling System



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### 20 & 50 TON COMPACTORS

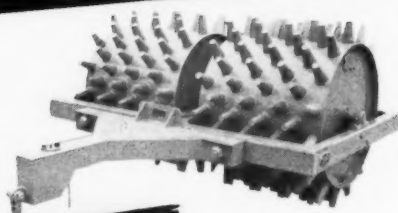
- ★ Variable wheel loads from 1250 to 25000 lbs.
- ★ Oscillating axles for flexibility, uniform compaction
- ★ 50 ton—4 tires 18.00x25—24 ply
- ★ 20 ton—6 tires 11.00x20—12 ply
- ★ For rolling to high density on heavy fills
- ★ Maneuverable, efficient, compact more yds. per hour



**SMOOTH**

### PNEUMATIC TIRED ROLLER

- ★ Two models: 9-wheel with 60" rolling width and 13-wheel with 84" rolling width.
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- ★ Most versatile roller ever used on road or airfield construction. Ground pressure per linear inch of rolling width can be varied from 47 to 325 lbs. Can be pulled by any average size, pneumatic-tired tractor at speeds to 12 M.P.H.



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### SHEEPSFOOT ROLLERS

- ★ 40" and 60" Drum Diameters.
- ★ Independent oscillation of each drum
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- ★ Roller bearings adjustable from outside. NO SHIMS to insert.
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511	512	513	514	515	516	517	518	519	520	601	602	603	604	605	606	607	608	609
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*Listing of your Business Connection is essential for handling literature requests*

**Contractors and Engineers - Request Card - Jan. '54**

Please send me further information on products shown in the Ad columns of this issue.

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Page	Product	Adv.	
Page	Product	Adv.	
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Here is some of the completed retaining wall for the 325-foot south approach. The Marion crane is placing earth fill.

No. 1 steam hammer, in swinging leads on a 1-yard Marion crane, did the driving. Steam was supplied by a 25-hp coal-fired boiler.

Since there was no established bedrock of any reasonable depth in the formation, the piles were ordered driven to 60 tons bearing. However, all went to practical refusal in a formation tagged as wash sand and gravel. Dependence was placed on skin resistance, which gave an ample safety factor for the H-20 loading. Average depths ranged between 26 and 30 feet.

Excavation for the footings which was carried on while the piles were being cast and accumulated came during a wet season which was followed by a dry summer. Most of the holes were dug with a 3/4-yard Marion using both a clamshell and dragline hookup. The holes filled with water, and 2-inch and 4-inch Carver pumps were kept busy drying them out. A lot of the finish digging was done with Thor clay spades supplied with air from a 210-cfm Worthington Blue Brute air compressor.

#### Forms

Forms for the hexagonal columns were made on the job in two halves, using 5/8-inch masonite liners on 2 x 4 studs with 2 x 4 walers. Others were made in the carpenter shop with forms for unexposed sections of the piers being made with common planks and the exposed sections with smooth masonite liners. The specifications called for a smooth finish. A 6-inch Beach engine-driven power saw was the main power tool for form building. Superior ties were used throughout.

Class A concrete called for a six-sack mix while the AA required seven sacks. Dewey cement, supplied by the Dewey Portland Cement Co. in town, was used. Aggregate consisted of river sand from Osage County. Railroad cars brought it in from the nearby Daily Sand Co. Rock was graded 1 1/2 inches down and was trucked in from the Matoka Stone Co. in Bartlesville.

Concrete was mixed in a 1/2-yard Koehring mixer mounted on an elevated platform so the discharge would be above the Blaw-Knox buckets in truck beds. Three buckets were in use. A two-compartment portable batcher was filled from the aggregate stock piles.

Concrete was handled by a 1-yard Marion with a 60-foot boom which also handled the reinforcing steel forms. A 3/4-yard Marion with a clamshell loaded the bins and a 3/4-yard Browning crane helped with steel and forms. A D7 Caterpillar with Traxcavator front-end helped out. Vibrators were Whites.

Forms were stripped in seven days

and exposed surfaces ground smooth. The web and beam forms on piers were stripped after 24 hours.

#### Pier Dimensions

A typical pier was No. 19. Each stem was 2 feet 6 inches square and

rested on a pile cap footing 8 x 6 x 4 feet. The pier was 23 feet high from the top of the footing to the top of the cap. The top member was 32 feet long and overhung the stems 4 feet 9 inches on each side. A cross member about midway between the

tops and bottoms of the stems was 4 feet deep, which left an opening below the top 6 feet 10 1/2 inches x 17 feet.

The 325-foot approaches are contained in retaining walls with wings  
(Concluded on next page)

# Form

Beautiful  
**ROUND  
COLUMNS  
of CONCRETE**

and

# Save

TIME...  
MONEY...  
LABOR...

WITH



ABOVE—Sonotube-formed concrete columns are a feature of the new J. M. Tull Building, Atlanta, Ga. Van Winkle & Company, contractors.

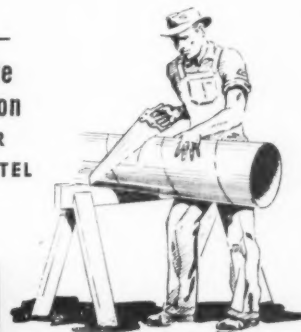
SONOTUBE fibre forms give you a fast, economical method of forming concrete columns, piers, piles, underpinning, etc. Sonotube is a versatile form which permits ready application to special column requirements.

SONOTUBE is being used widely by contractors, engineers and architects. These light weight forms require minimum bracing and can be sawed to exact lengths on the job. Sizes 1" to 36" I.D., up to 24' long or longer. Technical construction data available.



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GARWOOD, N. J. BRANTFORD, ONT. AKRON, IND.

## Piles Cast in Field For Concrete Bridge

(Continued from preceding page)

which were filled with dirt and compacted. The overpass carries a 28-foot clear roadway, has 6-inch curbs and a 4-foot 6-inch sidewalk on each side. There is a service road at ground level on either side of the overpass which is 19 feet 6 inches wide and composed of a 7-inch concrete slab on an 8-inch sand cushion base.

Overpass construction required some storm-sewer modernization which was done by the Gillioz Construction Co., Monett, Mo., which used two Schield Bantams to dig 2,700 feet of ditch and lay the 48-inch concrete pipe.

### Quantities and Personnel

Concrete piles	5,787 lin. ft.
Class A concrete	1,244 cu. yds.
Class AA concrete	911 cu. yds.
Pier footings	968 cu. yds.
Structural steel	798,000 pounds
Reinforcing steel	345,000 pounds

Harvey Bolinger was general superintendent for O. R. Gragg and had 21 men working. The Oklahoma Highway Department was represented by Bob Green, project engineer, and S. H. Shelden, resident engineer. C. A. Stoldt is director and J. J. Stobaugh, Jr., is construction engineer. **THE END**

## Line of Air Tools

A new line of contractor's air-tools is announced by the Davey Compressor Co., N. Water St., Kent, Ohio. Paving breakers are now being offered in four sizes from 35 to 90 pounds. The company's backfill tampers are available in 32 and 45-pound types. Rock drills include four models ranging from 28 to 58 pounds. The manufacturer states that the improved line has been designed with a view to reducing operator fatigue and making parts more interchangeable.

For further information write to the company, or use the Request Card at page 18. Circle No. 578.

## Turnpike Gets Radar

Radar is now being used to enforce speed limits on the 327-mile Pennsylvania Turnpike. Not intended for use in making a showing of arrests, it is being used primarily in areas of accident frequency and in reduced speed zone areas. The slightly foot-heavy driver will usually get off with just a warning.

## Line of Electric Hoists

A line of electric hoists is described and illustrated in a booklet from the Yale Materials Handling Division, The Yale & Towne Mfg. Co., Roosevelt Blvd. at Haldemann, Philadelphia 15, Pa. Shown are the Load King hoists, which have lifting capacities ranging from 1/4 to 1 1/2 tons.

All units in the line of electric hoists are furnished for field adaptation to lug or hook suspension and to plain trolley with suspension parallel or perpendicular to the I-beam. The hoists are available in both wire rope and chain types.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 521.

## Water-Repellent Coating

A water-repellent coating for porous masonry surfaces such as brick, cinder block, stucco, and cement plaster is discussed in literature from Prima Products, Inc., 10 E. 40th St., New York 16, N. Y. Silitec is a cementitious-base powder, composed of silicoes, activated metallic compounds, and finely ground ingredients. When mixed with water, it makes a decorative surface coating

that protects against water seepage and dampness above or below grade, on interior or exterior surfaces. It is available in white, gray, green, rose, and buff. Also covered in the brochure is a clear water-repellent coating, Siliphane, designed for exterior, above-grade masonry of all types.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 581.

## Atlas Promotes Thompson

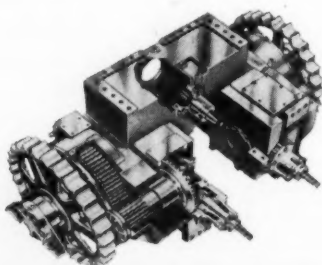
The manager of its explosives sales district in Seattle, Wash., George W. Thompson, has been recalled to Wilmington, Del., to become assistant to the director of explosives sales by the Atlas Powder Co., Wilmington. Seattle special representative Emmett G. Easterly succeeds Mr. Thompson, and James M. Ellis, a salesman for the firm in Portland, Oreg., takes over Mr. Easterly's job.



## THE EIMCO 105 FINAL DRIVE

Eimco's final drive assembly is just one of the new and exclusive features of the new Eimco 105. The Eimco final drive is a rugged heavy-duty assembly made of heavy alloy steel shafts and gears and encased in heavy alloy steel cast housings. The design permits easy access to gearing through side plates. The anti-friction bearings are assembled in cages for perfect fits and longer life.

Notice the absence of troublesome clutches, brakes and gadgets in this sturdy assembly.



The Eimco 105 Tractor-Excavator is a heavy-duty machine, made for digging or excavating in rock and other difficult materials. For easy loading, larger buckets are available up to 2 1/2 cubic yard capacity depending on material to be loaded.

All of the features of the Eimco 105 are covered by numerous patents issued or patents pending.

Eimco 105 Tractor Excavator is a new heavy-duty machine, thoroughly tested in the field, with all desirable features for a modern prime mover.

The 105 is a complete departure from ordinary tractor design in appearance and arrangement. The design features permit stronger construction, easier service when necessary and many other operating advantages such as:

1. Freedom from "leveritis" on the pulling and pushing of numerous hand levers, foot clutches, hand brake levers for steering and the necessity of stopping to change speeds or directions. With the 105 you use two small levers (one for each track) that can be held by one hand to give you forward motion — instant reverse or any degree of turn from "spin" turn to "feathered" turn. You can move the speed changing lever from one position to another while in motion under full load.

2. Full track oscillation even with attachments such as the Eimco loader.

3. Controlled loading speed through the Eimco two-speed bucket discharge mechanism. Easy light truck loading in low speed.



## Hercules Motors Elects Officers

John C. Keplinger has been elected president of the Hercules Motor Corp., Canton, Ohio, manufacturer of gasoline and diesel engines. Other appointments included Charles Balough, chairman of the board; Lawrence G. Downey, vice president; George W. LaSalle, vice president; F. H. Geisler, director of sales; and Dr. E. A. V. Horiak, chief engineer.

The new president joined Hercules as sales manager in 1926. He became a vice president in 1931 and was elected to the board of directors in 1934. In 1948, he was elected executive vice president.

Mr. Balough was one of the organizers of the Hercules Motor Mfg. Co., founded in 1915. He has been a director of the Hercules Motor Corp. since its organization in 1923, and president since 1929. He succeeds Gordon Mather, now retired.

## Gasoline Electric Plants

■ Literature is available on engine-driven electric plants made by the Marvel Equipment Corp., 215-217 Eagle St., Brooklyn 22, N. Y. The 1,200-watt 115-volt ac units are available in manual and remote-start models.

The generators are of the self-excited, saturated field, inherently regulated, two-pole type. Cooling is by a centrifugal blower that

draws air through the generator. The units are powered by 4-cycle Briggs & Stratton Model 8FB single-cylinder gasoline engines.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 624.

## Road Building Machinery

■ The latest methods and equipment used in the construction of concrete highways and airports are outlined in a booklet from the Heltzel Steel Form & Iron Co., Warren, Ohio.

The booklet deals primarily with such equipment as automatic batchers and batching plants, heavy-duty steel forms, and portable finishing machines. It covers automatic dual and tie-bar installation, high-speed joint installation, automatic membrane curing, and subgrade planning and testing.

To obtain this literature write to the company for Bulletin M-12, or use the Request Card at page 18. Circle No. 511.

## Hydraulic-Pump Line

■ A bulletin that points out features and gives selection data for the company's line of dual-vane hydraulic pumps is offered by the Dudco Division of the N. Y. Air Brake Co., 1700 E. Nine Mile Road, Hazel Park, Mich.

A series of technical drawings, cut-away photos, and performance data charts illustrates construction details of the pumps. The single-stage vane-type pumps are recommended for continuous operation at pressures up to 2,000 psi.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 613.

## Data on Welding Costs

■ An analysis of the basic causes of high welding costs is given in a new booklet from the Lincoln Electric Co., 2201 St. Clair Ave., Cleveland 17, Ohio. According to the analysis, labor and overhead are responsible for 87.85 per cent of the cost of welding. The cure recommended for this high cost is high usable welding currents, faster welding speeds, and less machine downtime. How these can be achieved is explained briefly in the booklet.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 533.

## Hewitt-Robins Promotions

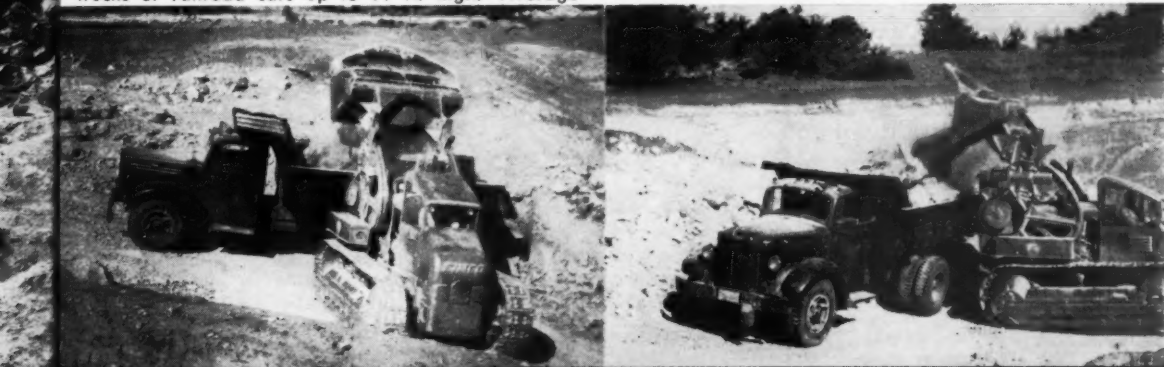
The Board of Directors of Hewitt-Robins Inc., Stamford, Conn., manufacturer of rubber products and conveyor systems, has elected Ellis B. Gardner and Robert A. Nilsen vice presidents. Mr. Gardner has been controller of the company since 1950. Mr. Nilsen is general manager of the foam rubber division.

Two changes in the sales operations department of the industrial rubber products plant have been announced by C. W. Mackett, manager of the department. Kenneth L. Way has been named assistant to Mr. Mackett, and Harry Knechtel succeeds Mr. Way as manager of hose sales and development.



(Above right): Eimco 105 excavating material in pit with uneven bottom. This type of digging and loading is impossible with any other economical type equipment. (Above left): Fast moving 105 backs across to place bucket full of rock in truck which is parked on even spot in pit. (Below): The Eimco 105 can load trucks or railroad cars up to 11 ft. high. Average

loading speed is 6-10 yards per minute in rock. Illustration on opposite page: The Eimco 105 shown here is loading a large truck from the end on a grade of approximately 20%. Two speed loading mechanism (exclusive on Eimcos) permits throwing load all the way back in this type of loading.



## THE EIMCO CORPORATION

Salt Lake City, Utah, U.S.A.  
Export Office: Eimco Bldg., 52 South St., New York City



4. Complete visibility with the operator well up front where he can see what's going on.

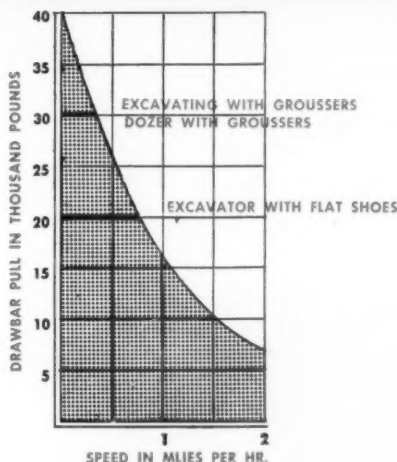
5. Greater production because of its easy handling and greater maneuverability.

6. Clutches never require adjustment.

Dependable operation is always a feature of Eimco equipment and in this the Eimco 105 is no exception. We have tried this machine under operating conditions where in a few short hours it has been subjected to more abuse than a high speed contractor can deal out in a month. The 105 can take it.

This rugged construction of the 105 was carefully planned. Every part has been designed for strength. Castings are all alloy steel. Wearing parts have been very carefully heat-treated. Machining tolerances have been held to rigid standards.

In addition to this, new designs have been incorporated in many of the individual pieces in order to give them greater strength, easier accessibility and in many cases to assure many years of operation with absolutely no attention except normal lubrication.



Drawbar pull charts based on preliminary tests showing relative comparisons.



Pit-run material starts toward the aggregate plant. A Bucyrus-Erie 120-B with a 5-yard dipper feeds the 48-inch Conveyor conveyor.



Pulling a rope from the cab of his GMC tractor-truck, a driver loads his 20-cubic-yard trailer with finished aggregate.



The cooling ducts from the insulated refrigeration building at the left connect with the Johnson batch plant at the right.



ONE OF THE MOST complete aggregate plants ever set up for a job requiring less than 1,000,000 cubic yards of concrete is in operation on the construction of Chief Joseph Dam on the Columbia River, 3½ miles downstream from Bridgeport, Wash. The plant was built on the right bank of the river at a cost of more than \$1,000,000 by Chief Joseph Builders, a joint-venture firm made up of four organizations.

The aggregate plant was intended for use on two contracts in the dam project. After being awarded the contract for the dam itself by the Seattle office of the Corps of Engineers late in 1950, Chief Joseph Builders put up the plant, gambling they would also get the contract for the powerhouse—which is to be the longest in the world.

The joint-venture firm lost the gamble. Another combine came through with a lower bid and subsequently was awarded the powerhouse job.

Named after a Nez Perce Indian chief who gained fame as a warrior and a military strategist when he held the U. S. Army at bay for five months in 1877, the dam is to be a gate-controlled gravity-type concrete structure. Its primary purpose

# Huge Aggregate Plant For Chief Joseph Dam

By RAY DAY

will be to provide hydroelectric power, though it will also aid in Columbia River flood control.

Work is presently in the fourth construction season. Concrete pouring began in September, 1951, and will continue through the early part of 1955. The Arundel Corp., Baltimore, Md.; L. E. Dixon Co., Inc., San Gabriel, Calif.; the Hunkin-Conkey Construction Co., Cleveland, Ohio; and the American Pipe & Construction Co., Los Angeles, Calif., make up the joint-venture firm.

## Power Output

Chief Joseph's rated power output of 1,728,000 kw will be second only to that of the Grand Coulee Dam and 400,000 kw higher than that of Hoover Dam. When finally equipped, the new dam will have 27 turbines of 100,000 hp each, along with 27 generators of 64,000 kw each under a rated power head of 165 feet.

The dam's barrier includes a 922-foot-long spillway, 1,342 feet of abutments, and a 2,036-foot intake structure on a different angle in connection with the powerhouse, making a total of 4,300 feet of concrete. Maximum height above the stream bed will be 205 feet; maxi-



A closeup of the two head towers riding a track on the right abutment of the dam.

A general view of the construction on Chief Joseph. In the foreground is the cableway used to transport the 8-yard Gar-Bro buckets to the pours.

CONTRACTORS AND ENGINEERS



mum height above foundation rock will be 230 feet. The gates will consist of 19 tainter-type crest mechanisms, approximately 40 x 49 feet, operated by individual hoists. A 22-foot roadway across the top will be used as a service road.

The reinforced-concrete intake structure will have a maximum height of 140 feet and an ultimate length of 2,036 feet, making it the world's longest. The reservoir behind the dam will back up almost to the tailrace of Grand Coulee. It will be 51 miles long, will cover 7,150 acres at normal full pool, and will hold 480,000 acre-feet of storage.

Total excavation amounted to about 9,000,000 cubic yards. There will be 981,000 cubic yards of concrete in the dam and 800,000 cubic yards in the powerhouse and intake structures. The low-cement concrete in the dam requires as little as 2¼ bags per cubic yard, for a predicted total of 677,000 barrels. The powerhouse and intake construction will require better-grade concrete; 720,000 barrels of cement will be used there.

#### Gravel Supply

Below Chief Joseph Dam, on the right bank of the river, is an almost unlimited supply of pit-run gravel, covering countless acres. The natural deposit is perfect for classification into the various sizes needed for the concrete, except for a slight excess of fines.

Excavation is being carried on in a 40 to 45-foot-deep cut in the shape of a cloverleaf about 400 feet long and 120 feet wide. The first of these excavations was made downriver, west of the aggregate plant. The second went south, at about a right angle to the river. The third was dug to the east.

A Bucyrus-Erie 120-B shovel, using a 5-yard B-E dipper with Esco teeth, loads a 15-yard receiving hopper set on heavy skids and equipped with lifting hooks so the shovel can carry it along a few feet at a move. The 120-B digs a curving slice as far as it can reach as it goes around the face of the cut. The material tends to cave off on a safe slope, making operation against a 45-foot face perfectly safe. After each complete slice is removed, a variable-length conveyor is extended so another cut can be made farther in the bank while still holding the receiving hopper under the dipper.

Excavation material is sent through the modern separation and reduction plant built by the Conveyor Co., Inc., Los Angeles. Frames, idlers, plant components, and other basic equipment, originated with Conveyco. Some special equipment, such as U. S. Rubber conveyor belting throughout the raw material portion of the plant, is also used. Wear in the throats of the discharge chutes is kept to a minimum by the use of Armortite rubber liners.

#### Aggregate Route

Pit-run material starts through the plant when the 120-B dumps a dipperful into the 15-yard hopper at the digging bank. There is a 48-inch x 8-foot reciprocating pan feeder under the hopper, driven by a 5-hp adjustable-speed induction motor. The pan feeder feeds the material to

a 48-inch delivery conveyor, 120 feet long, powered by a 50-hp electric motor. The conveyor delivers and dumps to a crusher car equipped with a 4 x 7-foot grizzly screen and a Pioneer 30 x 42-inch jaw crusher driven by a 125-hp motor. The grizzly screen separates plus 12-inch material and drops it through the Pioneer crusher whose jaws are set at 12 inches. The result is a rough product under 12 inches in size.

The material then passes to a

42-inch variable-length conveyor, driven by a 75-hp motor. It takes the material to a swiveled transfer point where it is dumped over a transfer chute to the main conveyor leading uphill to the aggregate plant. The main conveyor is also a Conveyco product. It has a 42-inch belt, is 535 feet long, and rises on an incline of 22 degrees, traveling at 485 fpm. Its 200-hp motor provides power to lift enough aggregate each shift to produce about 1,350 cubic yards of concrete at the

dam. It dumps to the single deck of an Allis-Chalmers ripple-flow screen, consisting of punched-plate steel with 7-inch square openings.

Oversize material from the ripple-flow screen passes to a temporary bin and is fed to a 24 x 36-inch Lippmann crusher, arranged in closed circuit with the screen deck. Throughs from the first screen pass to a double-deck A-C ripple-flow with a 7-inch punched-plate on the top deck and a 1½-inch wire-mesh

(Continued on next page)

## Why Sellin Bros. are sold on CAT\* performance

Harold and Roy Sellin, Hawley, Minn., are strong for the D8 Tractor and No. 80 Scraper. They say: "For success in earthmoving, buy Caterpillar!"



Building a mile of farm-to-market road near Hitterdal, Minnesota, Sellin Bros. made excellent time in spite of wet, boggy conditions. Their equipment on this job included four Caterpillar D8 Tractors and two No. 80 Scrapers.

The big units averaged 6 round trips per hour, carrying loads up to 22 cubic yards of heavy material, over a haul distance of 500 feet. Together the scrapers moved about 3,000 cubic yards in a 12-hour day. The earth handled was black loam and heavy, wet clay, and part of the haul was through standing water.

Here's what Harold and Roy Sellin say about their machines: "Caterpillar equipment is the best made, and durability is the outstanding feature. The No. 80 Scrapers load much faster and easier than other makes of machines, and production is higher."

When you're buying a scraper, look at your last cost first. Compare the Cat No. 80 or the new No. 90 with

any other make on cost per yard. Then figure the cost of repairs and down time. You'll find Caterpillar Scrapers not only outperform but outlast other makes, in every kind of going.

Your Caterpillar Dealer will give you a demonstration right on your own job—prove that the big yellow rigs will produce more, in less time, at lower cost. Call him today!

Caterpillar Tractor Co., Peoria, Ill.

# CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—®

NAME THE DATE...  
YOUR DEALER  
WILL DEMONSTRATE





An over-all view of the Conveyco rock plant which grinds out the aggregate for Chief Joseph Dam.

## Huge Aggregate Plant For Chief Joseph Dam

(Continued from preceding page)

screen on the bottom deck. Oversize from the top deck goes back to the crusher. Throughs passing the 1½-inch screen pass to a storage pile, which is tapped as needed for the production of fines.

The 6 to 1½-inch material is carried by a 36-inch conveyor driven by a 100-hp motor to a 9,400-ton live-storage surge pile. Should excavation have to halt because the shovel has to be moved or because new conveyor extensions become necessary, the surge capacity would be able to keep the concrete plant in operation for about two and one-half days.

The surge pile is stacked over a combination concrete and half-round metal culvert forming the bottom half of the structure. In the top of the culvert pipe is a 42-inch x 8-foot reciprocating feeder driven by a 5-hp adjustable-speed induction motor. This is used to draw off material as needed.

### Screening Building

Drawoff material passes to the top of a high screening building by means of a 30-inch belt. The building is equipped with a number of different-size A-C double-deck ripple-flow screens, one above the other, for classifying the aggregate. Conveyors carry off the classified material to storage piles. High-pressure water jets wash the material as it passes down the line.

Two 4 x 12-foot screens are at the top. Their upper decks retain 6-inch material on a ¾-inch punched-plate screen. This 6 to ¾-inch aggregate goes out by conveyor to a 2,700-ton live storage surge pile and is ready for use. The lower decks send 3 to 1½-inch material to a 2,000-ton storage pile.

Meanwhile, minus 1¼-inch material from the storage pile is being sent through a pair of 5 x 14-foot screens. The upper decks siphon off 1½ to ¾-inch material and the lower decks retain 0.75 to 0.206-inch material. These sizes are stored in the same way as the larger aggregates.

The natural fines that drop through these two decks are classified further in a second set of 5 x 14-foot screens. The top decks retain plus No. 8, while the bottom decks retain plus No. 16. The minus No. 16 that falls through is treated in a Conveyco sand-classifying tank.

### Classifying Tank

The purpose of the classifying tank is to separate sand into its component sizes, recombine these sizes in the desired proportions, and get rid of what is left. It uses the principle that the settling weight of sand particles is governed by their weight and size. The 9 x 36-foot tank is divided into eight longitudinal compartments. Each of these is further divided into four smaller lateral compartments, making a total of 32.

The sand and water enter the tank at one end. As the mixture travels the length of the tank, the sand settles in the compartments, the larger sizes first. The tendency for an excessive amount of sand to



## McKISSICK CONSTRUCTION BLOCKS

For construction men who specify the VERY-BEST



- ★ All steel construction throughout.
- ★ Bronze bushings or HY-LOAD roller bearings for medium or high speeds.
- ★ Sheaves grooved to proper line size.
- ★ GUARANTEED to carry rated load for the life of the block.

McKISSICK BUILDS A BETTER BLOCK FOR EVERY PURPOSE



fall into the first two compartments because of the turbulent flow of the mixture as it enters the tank is counteracted by means of a fresh-water inlet through these compartments. The inlet creates a rising current to settle out the sand more uniformly.

Each of the compartments has an outlet at the bottom which allows the operator to throw off the finished product. This is passed through the Conveyco sand dehydrator which pulls excess moisture out with the aid of a vacuum, turning out a uniform product. The moisture content holds steady for months at between five and seven per cent.

From the dehydrator, the sand passes to a 3,600-ton radial storage pile. Minus No. 8 material is put in a 1,200-ton radial storage pile. Material from these piles is drawn into a blending station and passed through two Merrick Feedweight automatic weighers to make the finished sand product.

#### Tapping the Aggregate

The finished aggregates are tapped by pan-type feeders into concrete and Armo half-round culvert pipes. Feed motors are controlled by a pull operated by the drivers of one Kenworth and four GMC tractors which haul the material to the batch plant at the dam 3½ miles away. The aggregates are transported in 20-cubic-yard trailers.

Specifications for dam concrete call for placement at temperatures between 40 and 50 degrees. For this reason, there is an elaborate cooling plant on the right abutment over the crest level. Refrigeration equipment is all on a single floor in the insulated building. There are nine G-E Freon compressors which furnish refrigeration to a G-E coil system arranged below the aggregate storage bins. Passing through these chilled coils is an 80,000-cfm blast of air supplied by four Sutorbilt fans driven by 75-hp motors. The cold air blast passes up through the aggregate bins to chill the material. About 1,100 tons can be treated at a time. Aggregate passes to these treatment tanks by conveyor from the ground-level pits where the haulers dump it.

Also included in the refrigeration plant are three Chrysler Airtemp machines that chill brine for a cold-water system inside a sand screw arrangement. These are used only in the most extreme summer months when the specification temperatures cannot be produced without sand cooling. When not used for sand cooling, the Airtemps make 42-degree water which is fed to four Vilter flake-ice machines to boost their output.

With the help of this precooled water, the four machines, rated at 30 tons each, can produce 150 tons per day. They are also aided by four Worthington ammonia compressors and two Vilter Size 438 ammonia refrigerating machines. Specification temperatures are more easily produced by chilling the aggregate and using flake ice instead of water in the mix.

Cold-air ducts run from the refrigeration plant to the Johnson 1,100-ton automatic batch plant. A common return duct carries the air back to the refrigeration plant for

cleaning and further cooling. The usual procedure is for 30-degree air to cool the aggregate bins. It warms up ten to 20 degrees before returning to the refrigeration plant.

#### Batch Plant

Concrete components are automatically proportioned by the Johnson plant. A printed record of batch weights is made by the Toledo scale. In addition, the Johnson recording system prints its own permanent record. Concrete batches pass to a set of three Koehring 4-yard tilting mixers set on a lower platform of the plant. They dump

into a 16-yard surge hopper, 8 yards at a time so that the 8-yard Gar-Bro buckets can be filled exactly.

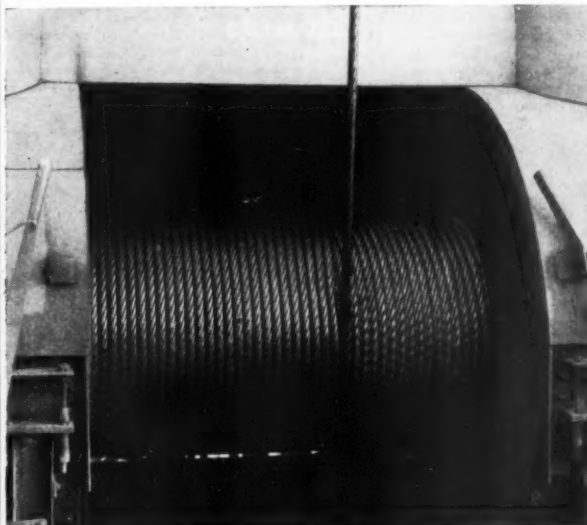
A railroad track passes beneath the surge hopper so that two Westinghouse-Caterpillar locomotives can transport the buckets to the work site. Each locomotive can carry a full bucket plus an empty one.

Concrete is placed by cableway. Two head towers with 700 feet of travel ride a track on the right abutment. On the opposite shore, 2,540 feet away, a stationary tail tower holds the weight of both

highlines at that end. The towers and hoists were made to contractor's specifications by Washington Iron Works, Seattle, Wash. A fully loaded bucket is able to roll from one end of the cableway to the other in 75 seconds.

When the cableway operator comes in to pick up a loaded bucket, he is carrying an empty one. He sets it down in the space provided for it on the railroad car and then picks up the full one. While he is waiting at the pour for the full one to be emptied, the train returns to the batch plant to exchange the

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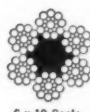


**OVERCOMING ABRASION**—Wire rope takes a beating on some jobs by abrasion. It is squeezed in multiple layers under tremendous pressure on rotary drilling drums in the Texas oil fields. In the Northwest it drags under heavy logs.

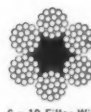


In this Arizona mine it is scraped over rocks to operate a slusher. Everywhere it is rubbed severely on winches that do not wind smooth. Under such conditions Red-Strand 6 x 19 Seale wire rope will last longer and save you money.

**What can you  
do better with 6x19  
Seale Red-Strand?**



6 x 19 Seale



6 x 19 Filler Wire

6 x 19 Seale has the same strength and weight as the more frequently used 6 x 19 Filler Wire, but the arrangement and size of the wires is different. You can see in the diagrams that the outer wires are fewer in number and larger in size. They provide *high resistance to abrasion* and greater wearing quality with somewhat less flexibility.

It's the perfect rope for certain jobs. Would it solve a problem for you? Be less trouble? Save more money? A Leschen man is near you. Perhaps he can help. Leschen is providing *longer-than-expected* wire rope service to industry everywhere.

Send for the 64-page Leschen Wire Rope Handbook. It describes Seale and all other Red-Strand wire rope constructions.

**LESCHEN WIRE ROPE DIVISION**  
The Watson-Stillman Company  
(A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)  
St. Louis 12, Missouri





## Huge Aggregate Plant For Chief Joseph Dam

(Continued from preceding page)

empty bucket it is carrying for another loaded one.

### Formwork

Blaw-Knox cantilever-type panels are being used for the conventional formwork. These re-usable steel sections permit 5-foot lifts. The concrete is "stairstepped" in several lifts as it is placed, vibrated by two-man vibrators, and cured by water. The flat joints are prepared for further bonding by surface blasting with an air and water jet.

The Columbia River channel at the dam location is narrow and confined. At first, a cell pile cofferdam built under a 1949 contract by the Peter Kiewit Sons' Co., Omaha, Nebr., was used. The main dam's 12-acre right half area was cleaned up and the first 15 blocks were poured to temporary heights. In the second-stage diversion, in the spring of 1952, the other half was cofferdammed, and the river was shoved over through the low blocks.

### Personnel

Chief Joseph Dam is under the general supervision of the Seattle office of the Corps of Engineers, Col. N. A. Matthias, district engineer. C. H. Wagner is resident engineer, Rufus Jackson is his assistant, Alf Lundly is construction chief, Morgan Thompson is engineering chief, Byno Jeter is power installation chief, and Charles Golder is geologist.

Chief Joseph Builders has a field force headed by William Evans, project manager; Tommy Curtis, general superintendent; and K. L. Parker, project engineer. **THE END**

### Asphalt Plants Shown

■ A new catalog illustrating the components of the company's Model 848 Series asphalt plants has been released by the Barber-Greene Co., Aurora, Ill. The brochure covers the mixer, dryer, gradation control unit, dust collector, and a number of accessory feeders, elevators, and other units. These can be combined into four separate plant set-ups, each designed for a specific application. The function, construction, and features of each component are discussed and illustrated by drawings, detailed pictures, and job photographs.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 547.

### Portable Electric Tools

■ A pocket-size catalog describes and illustrates a line of 52 portable electric tools and numerous attachments offered by the Porter-Cable Machine Co., 32 Exchange St., Syracuse 8, N. Y. The booklet contains complete specifications and prices for electric saws, sanders, grinders, drills, planes, routers, and shapers. Hedge shears, combo-tools, radial arms, blades, abrasive wheels, disks, and tool accessories are also shown.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 606.

## Synclinal Filters Adapted for Water

■ All models of the Marvel sump and line-type synclinal filters have been adapted for water applications, the manufacturer announces. The units are available in eight sizes with capacities of from 5 to 100 gpm. Greater capacities may be attained by multiple installations. Choice of mesh sizes ranges from coarse 30 to very fine 200 to handle particles of various sizes.

For further information write to the Marvel Engineering Co., 625 W.

Jackson Blvd., Chicago 6, Ill., or use the Request card at page 18. Circle No. 532.

## Baker-Raulang Changes

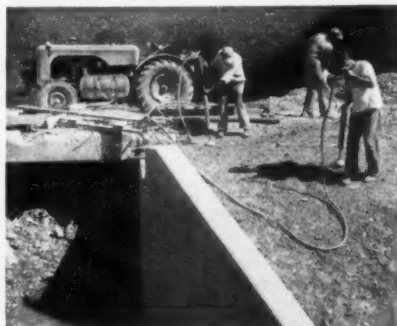
Two executive appointments have been made by The Baker-Raulang Co., Cleveland, Ohio, manufacturer of industrial trucks and tractors. John A. Matousek, formerly vice president of manufacturing, has been named vice president and general manager. Named as secretary and treasurer is Ernest R. Scovil, formerly secretary of the firm.

## Power-Line Pole Grip

■ A new tool for setting power poles up through energized power lines is announced by the Petersen Engineering Co., 460 Kifer Road, Santa Clara, Calif. The manufacturer points out that the Pengo Pole Grip does not replace the peavy, but does a different job. It enables one man to have complete control of the butt of the pole to safely guide its top between power lines.

For further information write to the company, or use the Request Card at page 18. Circle No. 607.

**Tamping** — Here's a Le Roi-CLEVELAND back-fill tamper air-powered by Tractair, that gives you faster, easier tamping, better compaction, lower costs. This example shows how Tractair teams up with Le Roi-CLEVELAND Air Tools to save time, work, money.



**Cutting asphalt pavement** — with a Tractair-powered Le Roi-CLEVELAND paving breaker. Note, Tractair in background is equipped with a sweeping attachment. This is just another of many ways that Tractair can save you money.



**Drilling trench** — Easy holding Le Roi-CLEVELAND sinkers provide the fastest way of drilling rock. The air-power source is a Tractair, equipped with a front-end loader. Tractair is extremely mobile. It has a low center of gravity. It's money-saving air power anywhere.



# LE ROI TRACTAIR

## ...the 10 in 1 machine that does 10 basic jobs to save you money

*It holds down your investment in special equipment*

Because Tractair is a combination 35-hp wheel tractor and 105-cfm air compressor, it is extremely versatile.

It lets you take air power wherever you want it — air power for drilling rock, tamping fill, breaking concrete, driving spikes and form pins, or pumping water.

When it is equipped with attach-

ments, you get added usefulness. You can load, back-fill, dig, sweep or hoist.

Although Tractair was pioneered and developed by Le Roi Company to do 10 basic jobs, its money-saving usefulness on costly, nuisance-type work is limited only by the user's imagination.

If you want to cut costs, get Tractair. Call your Le Roi dealer for a demonstration, or write us for further information.

**LE ROI GIVES YOU MORE FOR YOUR MONEY**

*More Utility!  
More Profits!*

CONTRACTORS AND ENGINEERS



## Material-Handling Buckets

■ Literature on material-handling buckets is offered by the Owen Bucket Co., Breakwater Ave., Cleveland, Ohio. Specifications are listed for Type K buckets with nominal ratings of  $\frac{3}{8}$  to 2 cubic yards. These are designed like the Owen digging bucket but with shells of proper proportion for the efficient handling of loose materials.

The brochure also lists Type S buckets, which are wider and proportionately heavier than corresponding sizes of the Type K buckets.

These buckets, available in  $\frac{3}{4}$  to 6-cubic-yard sizes, are adapted for clean-up work and for more efficient handling of certain materials. Due to extra width, they overload more than the Type K buckets in materials that are easy to handle.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 638.

## Koehring Appoints Two

Two district sales representatives have been appointed by the Koehring Co., Milwaukee 16, Wis. S. A.

Witte, formerly in charge of mid-west, some eastern, and Ontario sales, will take charge of sales in the southwest and far west, while George E. Schmidt will take over the territory formerly supervised by Mr. Witte.

From his office in Houston, Texas, Mr. Witte will work with Koehring distributors in Texas, New Mexico, Colorado, Oklahoma, and Louisiana. Mr. Schmidt, operating from headquarters in Milwaukee, will cover the states of Wisconsin, Michigan, Ohio, and western New York and Pennsylvania.

## Rayon-Carcass Tire

■ A truck tire with an improved rayon-cord carcass is announced by the United States Rubber Co., Rockefeller Center, New York 20, N. Y. The U. S. Royal Super Fleetway tire reportedly has up to  $1\frac{1}{2}$  times the tread rubber of standard models which, together with the stronger carcass construction, is said to give longer original mileage plus a sounder base for more recap mileage. The manufacturer states that the tire has up to 79 per cent more flex-fatigue resistance and 20 per cent more resistance to ruptures.

For further information write to the company, or use the Request Card at page 18. Circle No. 621.

## Replacement Parts For Crushing Machines

■ A new bulletin covering the company's manganese-steel replacement parts for sand, gravel, and crushed-stone machinery has been issued by the Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill. Oro replacements listed include crushing surfaces for hammermills; disintegrators; roll, jaw, gyratory, and cone crushers; chains and links; and dipper points and treads.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 577.

## CEMA Elections Held

R. F. Tomlinson was elected president of the Conveyor Equipment Manufacturers Association, No. 1 Thomas Circle, Washington 5, D. C., at its 20th annual meeting. Jervis C. Webb was elected vice president; E. E. Boberg, treasurer; and Russell B. Mass, secretary.

Re-elected executive vice president to continue as staff head of the association was R. C. Sollenberger. Harry C. Davis, outgoing president, was elected a director, along with Fred S. Wells and D. E. Davidson.

Mr. Tomlinson is manager of the conveyor department of the A. B. Farquhar Division, The Oliver Corp., York, Pa.; Mr. Webb is president of the Jervis B. Webb Co., Detroit, Mich.; Mr. Boberg is sales manager for Standard Conveyor Co., North St. Paul, Minn.; and Mr. Mass is president of the Screw Conveyor Corp., Hammond, Ind.

Mr. Davis is general manager of the Kanawha Mfg. Co., Charleston, W. Va.; Mr. Wells is vice president of the Stephens-Adamson Mfg. Co., Aurora, Ill.; and Mr. Davidson is vice president for sales of the Link-Belt Co., Chicago, Ill.

## Simplex Jacks Moves

A modern single-story plant, located on a 5-acre tract at Gardner Road and 16th St., Broadview, Ill., is the new home of Templeton, Kenly & Co., manufacturer of Simplex lever, screw, and hydraulic jacks. The plant has a steel roof, wood-block floor, and complete fluorescent lighting.

An innovation in the manufacturing section of the 96,000-square-foot plant is a centrally-located mezzanine parts-storage area which is easily accessible to both machining and assembly divisions.

**Leading** — Tractair takes air power practically everywhere, yet it can be used for a wide variety of other jobs. Its front-end loading attachment, for example, has 8 accessories that interchange easily, so that Tractair can load, lift, back-fill, plow, etc.

**Tractair with Mobildrill** — Mobildrill is a lightweight wagon-drill attachment for Tractair. It gives you unusual mobility — one man can drill holes at any angle and any elevation up to 12 feet. Swinging boom permits drilling 4-6 holes of a pattern from one spot.



Compressors  
Rock Drills  
Tractair  
Engines ...



**LE ROI COMPANY**

Milwaukee 14,  
Wisconsin

A Subsidiary of Westinghouse Air Brake Co.

Plants: Milwaukee • Cleveland • Greenwich • Dunkirk, Ohio • Coldwater, Mich.

## Nation-Wide Sales-Service Network

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco — COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Augusta, Decatur — IDAHO: Boise, Idaho Falls, Twin Falls — ILLINOIS: Chicago — INDIANA: Indianapolis — IOWA: Cedar Rapids, Des Moines, Waterloo — KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands, Worcester — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls, Kalispell, Missoula — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY:

Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper.



Brush along a road is sprayed with a herbicide by a special sprayer attached to an International truck. McMahon Bros., Binghamton, N. Y., developed the attachment which allows the driver to handle the entire spraying operation.

## New Spraying Device

WHEN THE SNOW SEASON moves into its last phase throughout the country, highway officials will begin to turn their attention to a warm-weather road maintenance problem: the control of brush and weeds that spring up along the roadsides and start to encroach on the highways. Soon, weeds will grow up at curves,

crossroads, culverts, guardrails, and any other place where they can secure root, to cut down on drivers' visibility and threaten the safety of the road. The concern of the highway maintenance department will be further aroused as more and more cars take to the nation's roads with the arrival of balmy weather.

This is the season when maintenance crews move out on the roads with mowers and work until fall. In some areas, the roadside vegetation is sprayed with herbicides. But this chemical treatment of weeds and brush is still looked upon with suspicion in many quarters, and weed control through mowing still remains the main form of getting rid of the growth. Perhaps the greatest opposition to the use of herbicides stems from the fact that sprayed brush turns brown and disfigures the roadside. However, some officials, weighing this drawback against the effectiveness and economy of chemical spraying, are turning to the use of herbicides for weed and brush control.

### Sprayer Attachment

An example of speed and economy is the job that McMahon Bros., 93 Main St., Binghamton, N. Y., is doing on roadsides in the northeast section of the country. For \$29.50 per mile, the company sprays both sides of a road three times a year. Working usually under a three-year contract, McMahon's price for the job comes to less than \$100 per mile. The company uses a sprayer attachment which it has developed especially for this work. It is fitted onto the front bumper of an International R-170 truck with a Heil body. The truck has a right-hand drive built for McMahon in accordance with the company's specifications.

The entire spraying operation is handled by one man. The spray nozzles on the attachment can be changed quickly and controlled separately, and all four nozzles are accu-

# TERRIFIC BREAK-OUT POWER

The versatile Drott Skid-Shovel easily out-performs any comparable equipment. Its exclusive pry-over-shoe power provides amazing break-out action — a digging force greater than the weight of the tractor — big loads every time. It lifts higher and reaches farther providing greater range for more effective loading, back-filling, and piling. Exclusive Hydro-Spring is a super shock-absorbing system that eliminates two-thirds of normal strain on tractor, loader, and operator. Get complete details. Write for Catalog 101.



Designed for International TD-6, TD-9, TD-14A, TD-18A Crawler Tractors.

### Exclusive "PRY-OVER-SHOE" Action

#### PENETRATION



1. Bucket forces its way under 10" concrete roadway.

#### BREAK-OUT



2. Tremendous pry-over-shoe power snaps off 4500 lb. chunk.

#### ROLL-BACK



3. The powerful TD-9 Int. tractor continues to move forward, forcing the big slab well up as the bucket begins its rollback to retain and balance the load.

#### SKID MOVE



4. Bucket rolled back 42°, holds slab in close, transports on skid shoes.



### LEVEL LIFT

5. Exclusive parallelogram arrangement maintains absolute level bucket throughout the raise to a loading height of 10'8".

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MANUFACTURING CORP.  
MILWAUKEE 8, WIS.

CONTACT YOUR DROTT INTERNATIONAL DISTRIBUTOR TODAY

### TRANSITS and LEVELS

NEW  
OR  
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We will buy or trade in old Transits Levels, Alidades, etc. Send instruments for valuation.

Write for Catalog EC-41 of Engineering Instruments, Engineering Field Equipment and Drafting Room supplies.

### WARREN-KNIGHT CO.

Mfrs. of Transits & Levels  
136 N. 12th St., Philadelphia 7, Pa.

CONTRACTORS AND ENGINEERS



# Checks Roadside Brush

*Operated by one man, fast and efficient machine  
sprays weed-killer up to 60 feet*

ately controlled by a single pistol grip. The nozzles can be applied close to the brush and are capable of spraying to any desired depth into the brush up to 60 feet. An off-center berm nozzle, which can be moved up or down for bank treatment, covers the berm. This nozzle, together with the three fan nozzles, can be moved up or down 45 degrees from a horizontal position. The operation provides positive coverage and swath control from 5 to 24 feet wide at the berm nozzle.

Chemicals are carried in a 150-gallon tank on the truck, which is equipped with a two-speed rear axle and five-speed forward transmission. A pump, operated from a three-speed power takeoff, pumps the chemical at 20 gpm and 800 pounds pressure to the 1,000-gallon spray tank. There the chemical is mixed with water. This tank can be filled in 13 minutes from any water source, even a small stream. Water is taken into the tank at 80 gpm through a special hose that is stored under the truck when not in use. Inside the larger tank, both chemical and water are given a trouble-free jet agitation. In addition to its use for weed control, the machine can also be used for spraying calcium chloride on dirt roads and fertilizer on roadsides.

## Operations Start Early

Using this machine, McMahon tackles a spraying job with the idea of killing weeds and brush so that a good, strong turf can be established that will resist the future invasion of weeds. Operations usually start not earlier than the first of May. The equipment covers both sides of a 25-mile stretch of highway in a single 8-hour day. By calculating when the early weeds go to seed and the next crop germinates, both sides of a 600-mile strip of road can be sprayed with one piece of equipment, getting all the spring weeds before they go to seed. Then the machine goes back to the

start of the run to destroy the next crop of weeds before it is high enough to be mowed. A third spraying is completed late in September on the final crop of weeds.

In its long-range program, McMahon completes three sprayings a season for three years. Thereafter fewer sprayings are required if strong weedless turf has been estab-

lished along the roadside. The three sprayings are specified by the company since two sprayings per season are not enough to establish a turf or reduce mowing costs.

The system of repeated spraying is necessary for brush as well as weeds, since no single spraying will kill all species. Some plants require several treatments. Other

growths apparently dead, often produce new shoots from portions of their root systems. In killing brush, a mixture of 2, 4-D, and 2, 4, 5-T is used. Where large woody growth is sprayed, it is done merely in passing. This stops further encroachment and avoids turning the brush a brown color. If the growth is too

(Continued on next page)

## VERSATILE and RUGGED...the Dependable DORSEY MODEL MTS



The varied routine of stevedoring imposes loads of unusual bulkiness as well as weight, but in all situations Walsh Stevedoring Company of Mobile finds Dorsey Low Bed highly maneuverable, fast and reliable. Walsh uses the trailer to move bulldozers, cranes, lift trucks, etc., from dock-to-dock and port-to-port.

"It takes expert operators for this kind of job and they really put hauling equipment through its paces. Our men like the way a Dorsey handles and it never gives a bit of trouble," says Shop Supt. William Brady.

In construction as well as stevedoring "time lost is money lost"—and Dorsey Heavy Duty Trailers are saving time on hundreds of jobs all over the world. Dorseys are designed for easy hauling and engineered to provide an extra margin of strength under unusual strain. Beam strength and tire capacity are conservatively rated, for safe hauling and extra-long service.

See you at the Convention! Our Mr. J. Alton Williams will be at the Barclay. See your Dorsey Distributor or wire us collect—our engineers are at your service.

**DORSEY TRAILERS • ELBA, ALABAMA**

## THERE'S A DORSEY HEAVY-DUTY TRAILER FOR EVERY NEED



Capacities up to 75,000 pounds. Loads easily, travels swiftly. Easy to load and to handle. For fast, economical service. 10 or 15 ton capacities. Level or drop decks. Semi or full trailers. 35 to 75 ton capacities, with up to 100 tons on special order.

## USE RIGHT BUCKET FOR THE JOB



Hayward makes all three—clamshell, electric motor, orange peel. A Hayward recommendation is unbiased.



Trade HAYCO Mark

THE HAYWARD CO.,  
32-36 Dey St., New York

**Hayward Buckets**



## New Spraying Device Checks Roadside Brush

(Continued from preceding page)

large to fall by itself, or if its falling would present a hazard to travel, it is simply not sprayed. Brush that is an inch or more in diameter is left to be cut later. This practice of cutting the larger vegetation and treating the remainder with a spray is a significant change in brush control.

Until the present time, herbicides have been used largely to control woody growth while weeds have

been neglected. This has resulted in a "brownout", the target for most of the complaints concerning the use of herbicides. Now the emphasis is on the use of chemical sprays to kill weeds and to prevent future growth. Thus, the "brownout" is avoided.

### Effective Chemicals

While much of the objection to the use of chemicals for roadside brush control centers on the ugliness of the roadside after it has been treated, critics have also been vocal about the effect of the chemicals on animals. Investigations to date

show that no animal has been affected adversely by either 2, 4-D, or 2, 4, 5-T, the herbicides most commonly used for this work. It seems more likely that weed control, whether through mowing or chemical treatment, has aided in conserving wildlife by removing cover near the edge of the road.

McMahon does the three-season spraying job on a volume of 3,500 road miles for the run of the contract, which brings to 21,000 the total number of road miles sprayed per season. Since the sprayer moves along at a faster rate than a mowing machine and requires much less maintenance,

the savings that accrue through using a spray can be used in other branches of highway development. Equally important is the fact that instead of just cutting down unwanted growth, chemical treatment kills it. McMahon feels that if the same skills and systems used in cutting, mowing, and removing are turned to chemical control, the job of roadside brush control can be done better and for less than its present cost.

THE END

From a paper by Raymond J. McMahon, presented at the convention of the American Association of State Highway Officials in Pittsburgh, Pa.

## DISTRIBUTORS

**ALABAMA**—Tractor & Equipment Co., Inc., 4400 First Ave. N., Birmingham 1; 605 Church St., Decatur; Ray-Brook Machinery Co., 2275 W. Fairview Ave., Montgomery 1; G. Box 37, Mobile.

**ALASKA**—Western Tractor & Equipment Co., Box 2032, Anchorage; Box 407, Fairbanks.

**ARIZONA**—State Tractor & Equipment Co., 407 S. 17th Ave., Phoenix; Lively Equipment Co., Albuquerque, N. M.

**ARKANSAS**—Euclid-Arkansas, Inc., 708 W. Second St., North Little Rock.

**CALIFORNIA**—Geo. M. Philpott Co., Inc., 1080 Bryant St., San Francisco 339 W. Maple St., Menlo Park.

**CANADA**—Dietrich Collins Equipment Ltd., 890 S. W. Marine Dr., Vancouver 14; B. C. Ferguson Supply Alberta Ltd., Calgary, Edmonton and Lethbridge, Alberta.

**CO. H. Gossell Equipment Ltd.**, 28 Janes Ave., Toronto; P. O. Box 187, Port Arthur, Ontario; P. O. Box 80 HDS, Montreal, Que.; Maritime Newfoundland Agencies Ltd., P. O. Box 622, Halifax, N. S.

**COLORADO**—Colorado Builders' Supply Co., 1300 West Evans Ave., Denver.

**CONNECTICUT**—The W. I. Clark Co., 2195 Stowell Ave., New Haven.

**DELAWARE**—L. B. Smith, Inc., Camp Hill, Penna.

**FLORIDA**—Florida-Georgia Tractor Co., 2806 W. Beaver St., Jacksonville; 2418 State Rd., Lakeland; 3128 N. Miami Ave., Miami; 1402 S. Orange Blossom Trail, Orlando; New Quincy Highway, Tallahassee; 219 S. 13th St., Tampa.

**GEORGIA**—Tri-State, Inc., 880 Glenwood Ave. S.E., Atlanta 1; East Side Highway, Macon; Olive St., Augusta; 719-14 No. Washington St., Albany.

**HAWAII**—Grace Brothers, Ltd., 770 Ala Moana Road, Honolulu 10, Hawaii.

**ILLINOIS**—Intermountain Equipment Co., Broadway at Myrtle St., Boise; 210 No. 4th St., Peoria.

**INDIANA**—All State Equipment Co., 7835 South Mendota Ave., Chicago 23; Euclid Sales & Service, Inc., St. Louis 10, Mo.

**INDIANA**—Rold-Holcomb Co., 1818 Kentucky Ave., Indianapolis 23; All State Equipment Co., Chicago 23.

**IOWA**—Herman M. Brown Co., Des Moines, Cedar Rapids and Sioux City; Peoria Tractor & Equipment Co., Omaha 2; Neb.

**KANSAS**—The O. W. Van Kappel Co., Kansas City 8; Euclid-Kentucky, Inc., 3900 Crittenden Drive, Louisville.

**KENTUCKY**—Euclid-Kentucky, Inc., 3900 Crittenden Drive, Louisville.

**LOUISIANA**—Euclid-Memphis Sales, Inc., Memphis 2; Maize-N. A. Burkin, Inc., Route 3, N.P.D. 2, South Portland.

**MARYLAND**—Rich Equipment Co., Clarksburg, W. Va.; L. B. Smith, Inc., Camp Hill, Penna.

**MASSACHUSETTS**—Clark-Wilson Co., 118 Western Ave., Boston 34; The W. I. Clark Co., New Haven, Connecticut.

**MINNESOTA**—W. H. Anderson Co., Inc., 47 West Second St., Detroit 3; The Euclid Road Machinery Co., Hibbing, Minn.

**MISSISSIPPI**—The Euclid Road Machinery Co., Highway 169 West, Hibbing.

**MISSISSIPPI**—Euclid-Memphis Sales, Inc., Memphis 2.

**MISSOURI**—Euclid Sales & Service, Inc., 3231 Manchester Ave., St. Louis 10; The O. W. Van Kappel Co., 2461 Parkway, Kansas City 8.

**MONTANA**—Natl-Perry Machinery Co., P. O. Box 1382, Butte.

**NEBRASKA**—Fohra Tractor & Equipment Co., 1809-11 Cummins St., Omaha 2; Colorado Builders' Supply Co., Denver.

**NEVADA**—Geo. M. Philpott Co., San Francisco; Monrovia, California; Foulger Equipment Co., Salt Lake City 8, Utah.

**NEW HAMPSHIRE**—Clark-Wilson Co., Boston 34, Mass.

**NEW JERSEY**—L. B. Smith, Inc., Camp Hill, Penna.; Hubbard & Floyd, Inc., New York 31, N. Y.

**NEW MEXICO**—Lively Equipment Co., 2601 New Fourth St., Albuquerque.

**NEW YORK**—Hubbard & Floyd, Inc., 1818 St. Gerard Ave., New York 31; T. E. Feltz Equipment Co., 2380 Sheridan Dr., Buffalo; L. B. Smith, Inc., 297 W. Fayette St., Syracuse 2; 134 State St., Albany.

**NORTH CAROLINA**—North Carolina Equipment Co., P. O. Box 980, Greenville 1; P. O. Box 1208, Charlotte; Swenson Creek Rd., Asheville; P. O. Box 128, Guilford; P. O. Box 648, Wilmington; Hampton Roads Tractor & Equipment Co., Norfolk, Virginia.

**NORTH DAKOTA**—Northwestern Equip. Co., Box 182, Fargo; Northwestern Equip. Co. of Minn., Box 338, Minn.

**OHIO**—The W. W. Williams Co., 638 Goodale Blvd., Columbus 3; 16361 Broadway Rd., Cleveland 11; 914 Rula St., Cincinnati 18; 1840 Conant St., Toledo (Maumee).

**OKLAHOMA**—Butler-Sparks Equipment Company, Oklahoma City and Tulsa.

**OREGON**—Intermountain Equipment Co., Boise, Idaho; P. L. Crooks & Co., 2148 N.W. Pettygrove St., Portland.

**PENNSYLVANIA**—Atlas Equipment Corp., 638 Ridge Ave., Pittsburgh 32; Standard Equipment Co., 182 Horton St., Wilkes-Barre; Hapburn & Lysening Sts., Williamsport; L. B. Smith, Inc., Camp Hill (Harrisburg); 29th & Montgomery Avenue, Philadelphia.

**RHODE ISLAND**—Clark-Wilson Co., 2323 Pawtucket St., E. Providence.

**SOUTH CAROLINA**—Southern Equipment Sales Co., Sumter Highway, Columbia.

**SOUTH DAKOTA**—The Euclid Road Machinery Co., Hibbing, Minnesota.

**TENNESSEE**—Euclid-Memphis Sales, Inc., 185 E. Butler Ave., Memphis 2; Power Equipment Co., 1818 Island Home Ave., Knoxville; 600 W. Manning St., Chattanooga; 121 Clay St., Kingsport.

**TEXAS**—The Euclid Road Machinery Co., 1007 Levee St., Dallas 2; Lively Equipment Co., P. O. Box 1436, El Paso.

**UTAH**—Foulger Equipment Co., 1281 So. 2nd West, Salt Lake City 8.

**VERMONT**—Clark-Wilson Co., Boston 34, Mass.

**VIRGINIA**—Hampton Roads Tractor & Equipment Co., 7th and Kilson Ave., Norfolk; Rich Equipment Co., 1901 Chamberlayne Ave., Richmond 10; 408 Center Ave., N.W., Roanoke 7.

**WASHINGTON**—Western Tractor & Equipment Co., 2230 First Ave., S. Seattle 4; 988 Prindle St., Chelmsford, N. H.; Box 84, Tacoma; Intermountain Equipment Co., E. 631 Sprague Ave., Spokane 8; P. L. Crooks & Co., Portland, Oregon.

**WEST VIRGINIA**—Atlas Equipment Corp., Pittsburgh; Rich Equipment Co., Kanawha Blvd., Charleston 22; East on U.S. 80, Clarkstown; P. O. Box 399, Bluefield.

**WISCONSIN**—Cunningham-Ortmeyer company, Milwaukee 48; Eau Claire and Green Bay.

**WYOMING**—Colorado Builders' Supply Co., Denver.

OHIO

C-58 C-56 C-57 C-56 C-55 C-54 C-53 C-52 C-51 C-50

V. N. Holderman & Sons  
Columbus, Ohio  
Ruby Construction Co.  
Madisonville, Kentucky

13 EUCS

Launders & Son Co.,  
Pierce Const. Co.,  
Toledo, Ohio

25 EUCS

Terry & Wright Construction Co.,  
Calumet Paving Co.,  
Louisville, Kentucky

13 EUCS

\*Green figures indicate  
number of Euclids  
in current use.

## HISTORY REPEATS!

... it's "EUCS" on the Ohio Turnpike now!

The new 241 mile Ohio Turnpike, stretching across the state from Pennsylvania to the Indiana border is now under way. Although contracts for only about 40% of the project have been awarded, 168 "Eucls" are already moving earth and rock on the excavation and heavy grading, and many more will move on the job as the work progresses all along the way.

Just as most of the contractors on every new toll road built during the past 15 years ... in Pennsylvania, New Jersey, Maine, West Virginia, New York, Oklahoma and others ... have relied on Euclid equipment, contractors working on this newest turnpike are also counting on "Eucls" to get their earth moving done on schedule and at a profit.



Baltes Co.,  
Oak, Ohio

EUCS

Ralph  
Salem

C-27 C-28 C-29

168

As shown  
of Septem  
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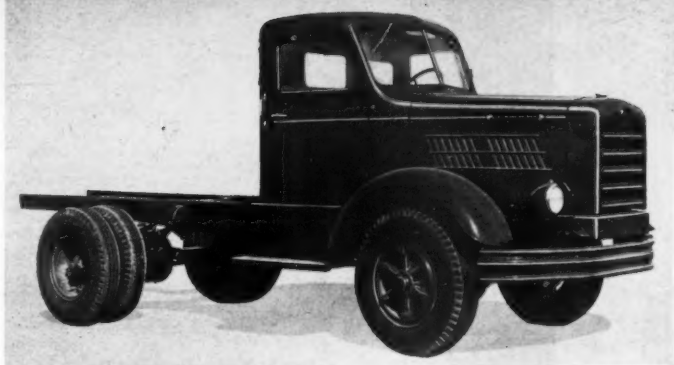
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A model from the new truck line made by the Four Wheel Drive Auto Co. ►

### Heavy-Duty Truck Line

■ A line of heavy-duty trucks is announced by the Four Wheel Drive Auto Co., Clintonville, Wis. The new four and six-wheel-drive trucks are designed to correctly proportion truck weight and power between the front and rear wheels, according to the manufacturer. This is said to result in more tire life and greater tractive ability.

The frame features a deep taper design that makes the front end more rigid for mounting equipment and better distributes the load over the entire frame. Other features are a stronger full-floating rear axle, a trunion-mounted radiator, and rubber-cushioned end mountings. Lightweight valve-in-head and diesel engines are available for all models. Power steering is optional.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 520.

### Auger-Type Boring Machine

■ Literature on an auger-type machine for boring road crossings where rock is not encountered is available from M. J. Crose Mfg. Co., Inc., 2715 Dawson Road, Tulsa, Okla. The Crose boring machine can be used on pipeline, electrical conduit, sewer, water line, concrete pipe, and cast-iron pipe jobs. It is adaptable to all sizes of casing from 3 to 36 inches. The unit has a sled-mounted assembly powered by a heavy-duty industrial gasoline engine. Two models are shown for 30 and 36-inch maximum casing sizes.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 599.

### Domor Releases Two Films

Two 16mm sound color films covering the operation and application of some of its equipment have been released by the Ulrich Products Corp., Roanoke, Ill. One concerns the Domor elevating grader and the other is on the Domor road widener.

The longer of the two movies stresses the versatility of the elevating grader. It points out time and money-saving features. Running time is 10½ minutes. The story of the road widener's proper application on concrete and asphalt widening jobs is told through the filming of an actual project from start to finish. It is 7½ minutes long.

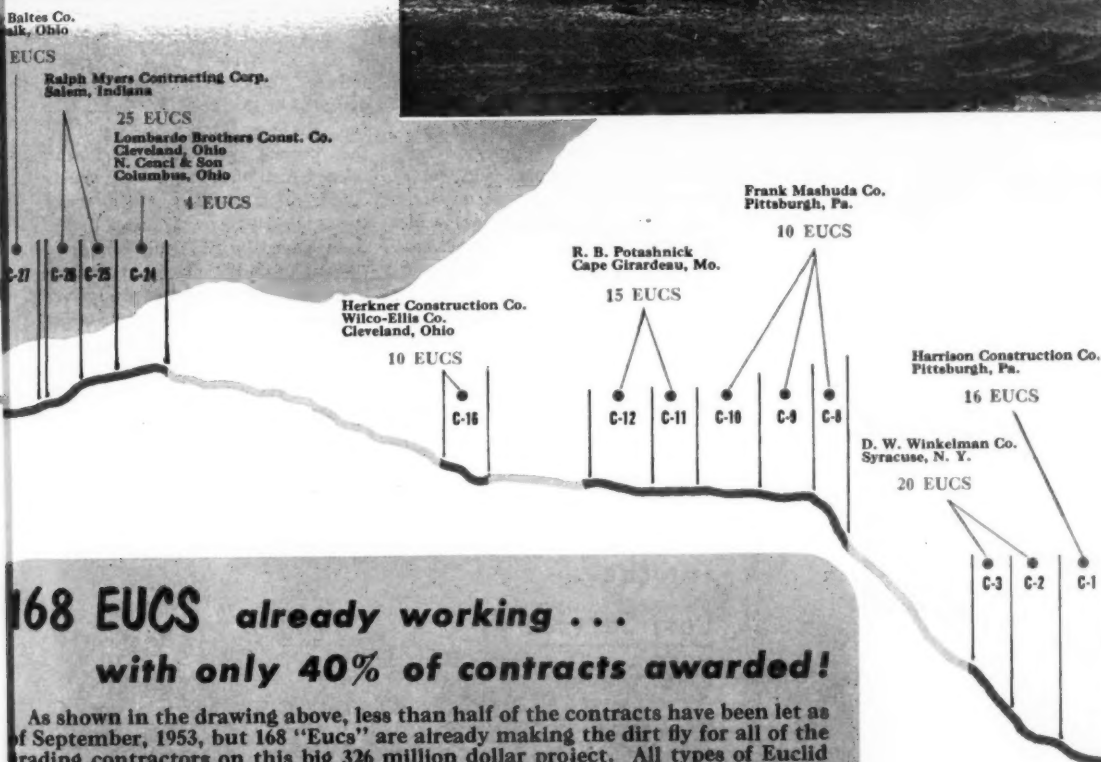
Information about the movies can be obtained from Caterpillar-Domor dealers or from the manufacturer.

### New Industrial Engines

■ A line of skid-mounted industrial power units, placed on the market by the White Motor Co., 842 E. 79th St., Cleveland 1, Ohio, is described in new literature from the company. The literature contains installation diagrams and engine performance curves on the six models of the 100 Series 1A four-cycle six-cylinder gasoline engine.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 517.

and again  
the Call!



**168 EUCS already working ...**  
**with only 40% of contracts awarded!**

As shown in the drawing above, less than half of the contracts have been let as of September, 1953, but 168 "Eucls" are already making the dirt fly for all of the grading contractors on this big 326 million dollar project. All types of Euclid equipment... Rear-Dumps, Scrapers, Loaders and Bottom-Dumps... are being used according to the specialized requirements of every job along the way.

It's not mere coincidence that contractors on practically every big rush earth moving project... and on the smaller jobs, too... are almost unanimous in their selection of Euclid equipment. They know that Euclid is the pioneer and leader in the earth moving field and that "Eucls" are backed by a world-wide distributor organization with unexcelled parts and service facilities.

When your competitors have the benefit of high production at low cost provided by "Eucls," you need all of the profit making advantages that can be yours with Euclid equipment. Your distributor will be glad to supply all the facts, so get in touch with him right away.

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

# Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE







## BAER DRAGLINES

cast-fabricated  $\frac{3}{4}$  to 6 yards\*

Hitch plate, side plate, and trunnion bracket are cast or welded into one piece to guarantee strength on stressed sidewalls. Rolled alloy or cast lips are faired for fast loading. Digging angle may be adjusted by turning hitch shackle.

## BAER REPLACEABLE BUCKET TEETH

Baer replaceable bucket teeth will cut your digging costs on any job on any adaptable bucket. This claim stands — regardless of the teeth you are now using.



- BAER SHOVEL BUCKETS
- BAER HOE BUCKETS
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Write today for full details and literature

**Steel Products, Inc.**

Auburn, Washington, U. S. A.

DURABLE AND

# COLOR FAST

**VISKON**  
NONWOVEN RAYON



# Flagging Tape

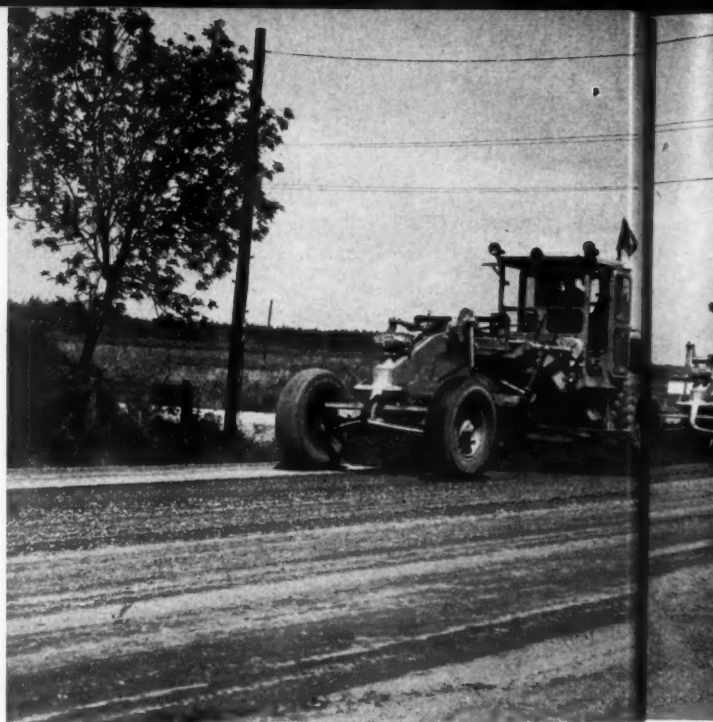
Available in brilliant non-fade colors  
... Doesn't brittle even at 70° below  
... Roll windings will not slip off...  
Weighs half as much as plastic tape  
... Easy to write on with any pencil  
or pen... Easy to tie with cold, wet  
hands... Handy to carry—loop belt  
through core... 300 feet to a roll...  
1½ inches wide... Other sizes and  
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## Stabilized Gravel Base Use W

TRAVELING ALONG the Iron Junction Cutoff east of Hibbing, Minn., motorists now find that the old concrete-paved county highway has taken on not only a new and wider bituminous surface, but a state trunk highway designation as well. The 20-mile county road, which has carried a heavy volume of traffic with little maintenance cost for many years, was incorporated into the State Trunk Highway System in 1951 and designated as Highway 216 by the State Legislature. Plans for widening and resurfacing the road

followed quickly; a contract was awarded in 1952 to E. W. Coons Co., Inc., Hibbing, Minn. Late last year, the project was completed and opened to traffic. The road, a short-cut from the western iron range towns to Highway 53, was previously paved by St. Louis County.

With the addition of one foot on each side, the 20-foot roadway was widened to 22 feet. To eliminate the unsightly crack which has come through the resurfacing at the edge of the old concrete slab many times, an unusual design was planned un-

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These features add up to the Lufkin "Peerless"—a durable steel tape made for engineers. Available in 50, 100, 150 and 200 ft. lengths. Two finger rings furnished for use without the frame.

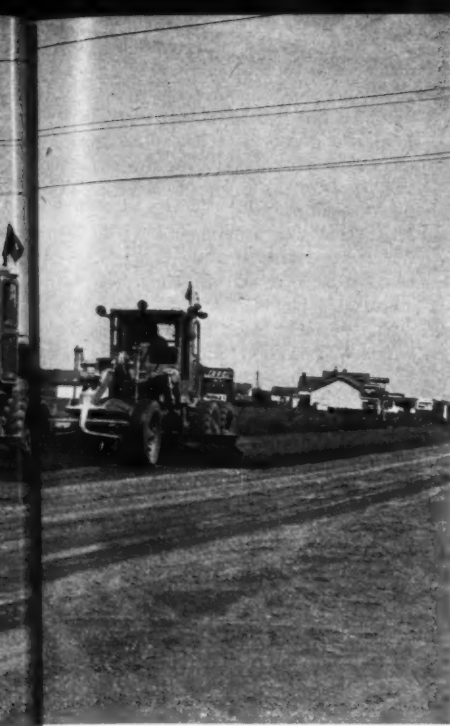


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The clay-stabilized gravel base course is mixed and laid on the old concrete of Highway 216 by two Caterpillar No. 12 motor graders. C. & E. Photo

## so Widening Concrete Slab

der the resurfacing in the widened area. This called for the use of a stabilized gravel subbase topped with a bituminous base.

### Widening the Base

A trench was dug 2 feet wide and a foot deep on each side of the old slab. This excavation was carefully filled with stabilized gravel placed in 3-inch lifts, then well compacted. The surface was finished level with the concrete slab and left in place during the winter.

The following spring the top 6

inches of this material were removed and replaced with an equal thickness of plant-mixed bituminous base mixture. This was a 2-aggregate mix; the larger size was graded from  $\frac{3}{4}$  inch to No. 4 and the smaller size, from No. 4 to minus 200. Asphalt cement of 150 to 200-penetration was the binder.

An Apsco widener laid the 2-foot-wide strip on each side of the old road in three 2-inch courses. In this operation, the mix was produced and placed at the rate of 100 tons

(Continued on next page)

## The Unconditionally Guaranteed Davis Hydraulic Loader



**HAS THIS HANDY CONCRETE BUSTER ATTACHMENT**



Here's an attachment to the Davis Loader that handles toughest jobs in real money-saving time. This, plus other year-around attachments, and such exclusive features as 12-minute attachment, box-frame construction, oil filter, adjustable arms that keep bucket in correct position to ground, plus many others, make it your best loader buy. See your dealer, or send coupon for information.




Dozer Blade      Crane



Utility Bucket

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Send me literature on the Davis Loader \_\_\_\_\_  
and Concrete Buster Attachment \_\_\_\_\_ to fit a  
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### HERE'S A FASTER, EASIER, CHEAPER WAY TO HANDLE MORE DIRT, ROCK OR GRAVEL!



### The OMAHA STANDARD "CENTER DUMP" Trailer . . .

. . . Custom Built to Job Requirements is designed for contractors who want to haul dirt, gravel, rock, long or short distances, quickly and at low cost, for stock piling, spreading or dumping. Contractors say it is just what they have been looking for!

- ★ Each unit built to job requirements.
- ★ Dumping mechanism FOOL-proof—trouble-FREE!
- ★ Available in sizes and lengths to meet all bridge and axle laws.
- ★ Release on doors INSTANT, SHOCK-PROOF, protected from material flow.
- ★ All steel welded body, chassis. Built to withstand roughest loading, toughest service.
- ★ DOOR OPENING Meter control that can be pre-set

Write at once for specifications and descriptive folder that will answer your questions and show how you can make every load a "profit" load. Address today Dept. A.

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**FACTORY & GENERAL OFFICES**  
2411 West Broadway, Council Bluffs, Ia-6

## What more could We say?

*From the General Office of*  
**INDUSTRIAL ASPHALT**  
April 14, 1953

Mr. M. B. Freeman, Vice President  
Standard Steel Corporation  
P. O. Box 15252  
Los Angeles 58, California

Dear Mr. Freeman:

I would like to take this opportunity to thank you and your organization for the wonderful cooperation and prompt services rendered in connection with the purchase, construction, and installation of our new Standard Steel, Model R B, electric driven asphalt plant at our location in Sun Valley, California.

This new Standard Steel plant was officially christened on April 11th, 1953 and went on commercial production April 13th, 1953. Our plant manager at Sun Valley, Mr. Frank S. McGinnis, reported today that this new plant was running at full capacity and with more ease, speed and efficiency than any of our other four Standard Steel plants in the Los Angeles area.

Our employees like this new plant so much they are all fighting for priority to be transferred to its operations.

I would be very ungrateful not to express my appreciation for the help your engineering department gave to our superintendent during the course of assembling this great plant.

Yours very truly,  
**INDUSTRIAL ASPHALT**  
By *W. E. Hunt*  
W. E. Hunt, its Executive Manager



Join the hundreds of completely satisfied users of Standard Asphalt Plants. Speed your operation—decrease your maintenance and operation costs—increase your profits the Standard way.

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A Barber-Greene finishing machine places a 1½-inch binder course over the road-mix base course on the Highway 216 project.

C. & E. Photo

## Stabilized Gravel Base Widens Concrete Slab

(Continued from preceding page)

per hour. A Buffalo-Springfield trench roller compacted the material.

The completed 24-foot-wide base consisted of the old concrete slab flanked by two strips built up of 6-inch gravel subbase and 6-inch bituminous base. Bituminous leveling, binder, and wearing courses placed later were 22 feet wide, lapping just one foot over the base widening strip on each side of the old concrete. It is expected that this will not result in a crack at the edge of the old concrete or in surface settlement over the widened portion.

### Base and Leveling Courses

This type of widening was used

only where the old grades and sight distances were satisfactory. Where it was necessary to correct sags, improve sight distances, or change grades, a gravel base from 6 to 18 inches thick was laid over the entire width of the roadway. Material for this course was a crushed pit-run gravel with a maximum size of 2 inches and averaging about 30 percent crushed material. Clay was added as a binder.

The gravel base material was windrowed on the roadway, watered to optimum moisture content, then mixed and laid out with Caterpillar No. 12 motor graders in 2½ to 3-inch courses. Each course was compacted with Bros 13-wheel rubber-tire rollers pulled by rubber-tired tractors. Gravel base was sublet to Ulland Bros., Duluth, Minn.

All new gravel base received a 1-inch topping of road-mixed bituminous base material. The same aggregate used for the plant-mixed bituminous base was used for this mix, with the bitumen being an MC-3 cutback asphalt. Bitumen was applied with a 1,200 gallon Littleford distributor mounted on an International K-7 truck.

Caterpillar No. 12 motor graders and a Seaman Pulvi-Mixer mixed and laid out the material, which was compacted by 3 Bros pneumatic rollers pulled by Minneapolis-Moline and International ID-9 tractors. This operation required 12,072 tons of bituminous mixture which covered 223,400 square yards of roadway area.

Irregularities in the old pavement were eliminated by a bituminous leveling course. This plant-mixed material was laid by the motor graders, then rolled with both pneumatic and steel-wheel rollers.

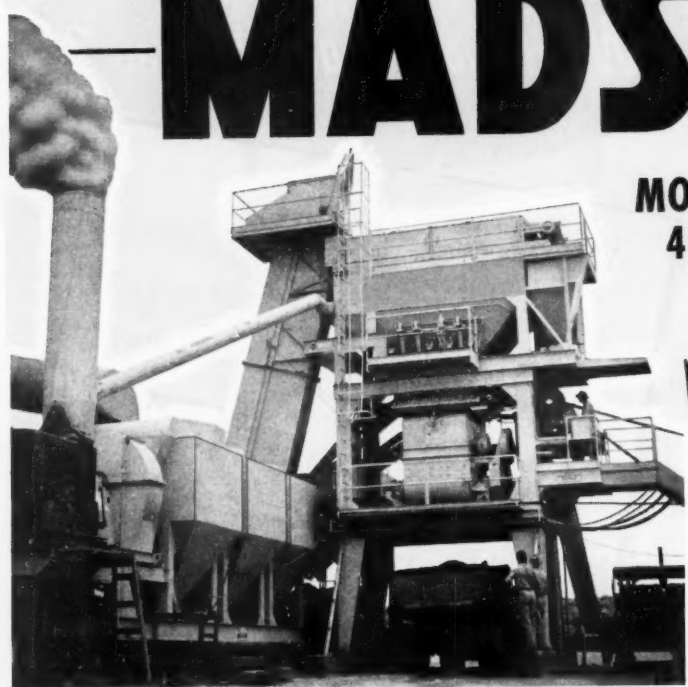
### Bituminous Surfacing


Two Barber-Greene finishing machines laid the 1½-inch course of binder and wearing course material. Each machine laid one of the 11-foot lanes, thus eliminating the time-consuming move—as much as 2 miles a day—back to the start of paving operations. Coons used six Ford F-6 tandem-drive trucks equipped with 8-cubic-yard dump boxes for hauls. Other rented trucks were added for the longer hauls.

Buffalo-Springfield 8 to 10-ton tandem and Ingram 10 to 12-ton 3-wheel rollers worked behind both pavers on the binder and wearing courses. In the 20.2 miles of the

# MADSEN

**MODEL 481**





How do you figure the money-making potential of an ASPHALT PLANT?

When you look at an asphalt plant, look at it from the standpoint of how much it will earn for you this year, next year, as well as many years to come. Here are some things to consider: portability, first cost in relationship to production capacity, accessibility, and maintenance costs.

Take the MADSEN Model 481! It has more money-making features than can be found in any other plant of its type. It is designed for the ultimate in portability. The unitized sections are easy to erect and dismantle. Bin gates, weigh-box, mixer, and asphalt injection control valve are air-cylinder controlled. This means a faster mixing cycle resulting in greater daily production. The roll-away weigh-box means easy access to the mixer. Adequate service platforms, stairways and ladderways provide for more convenient and safer servicing. Think about these features... they are worth money to you. Consider them when figuring the money-making potential of your next asphalt plant.

Now is the time to learn about MADSEN! Let us tell you the complete story about the new MADSEN 481 4000-lb. Batch Capacity Asphalt Plant.

### HERE ARE SOME FEATURES THAT MAKE THE MADSEN MODEL 481 YOUR BIG MONEY-MAKING POTENTIAL IN ASPHALT PLANTS

- New MADSEN Model 440 Twin-Shaft Pug Mill Mixer (Patent Pending) with improved mixing action, faster discharge, built-in oversize capacity and precision-ground, externally removable sectional liners.
- Exclusive bin design (Patent Pending) for more uniform withdrawal of aggregates.
- MADSEN Pressure Injection System (Patent No. 1987243)...the asphalt is pumped into the mill in 5 to 7 seconds!
- Mixer operator station on end of plant away from fumes and heat.

Photo at top of page shows the MADSEN Model 481 4000-lb. Batch Type Asphalt Plant in full operation. It is equipped with combination direct diesel drive and diesel electric drive, utilizing a Caterpillar 156 KW generating unit. Complete set-up includes a MADSEN 380 Dust Collector unit and a MADSEN 84" x 30" Dryer.



WRITE for your copy of Bulletin No. 800 describing the MADSEN Model 481

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MADE WITH KILN DRIED 6" WIDE  
HARDWOOD AND HEAVY SPRING STEEL  
WIRES TRIPLE OUT EACH HOLE.  
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ILLUSTRATION OF  
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NOTICE! Our 15" length Unit Drag 3" wide  
with the two bolts that fits your frame,  
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CONTRACTORS AND ENGINEERS



project there were 19,512 tons of binder and 20,407 tons of wearing course mix; the difference resulted from the paving of aprons at approaches and cross roads.

The wearing course was given a seal coat of rapid-curing cutback applied by the Littleford distributor at the rate of about 0.12 gallon per square yard. Sand, spread over the seal coat with a Buckeye chip spreader, was rolled with both pneumatic and steel-wheeled rollers.

#### Hot-Mix Plant

All the plant-mixed bituminous materials were produced in a Barber-Greene plant set up just off the right-of-way near a gravel pit. Aggregates were crushed and screened at the pit by a Pioneer crushing and screening plant.

A Caterpillar D8 tractor and 12-yard scraper with another D8 pushing, loaded gravel in the shallow pit and hauled the material to the trap that fed the crushing plant. A belt conveyor carried the gravel from the trap to the Pioneer Model 150 primary crushing unit where a scalping screen by-passed material under 1½ inches to the secondary unit. Rock over 1½ inches was fed to the primary jaw crusher.

In the Pioneer Model 140S secondary unit, the material was reduced to a top size of ¾ inch. Both crusher units were powered by Caterpillar diesels. As the crushed material passed off the final belt conveyor, it was pushed into a stockpile close to the hot-mix plant by a Caterpillar D7 tractor and dozer.

The Barber-Greene plant, rated at 120 tons per hour, contained a Model 848 pugmill mixer and 866 gradation unit. The Model 837 dryer was fed from the stockpile by a belt conveyor and discharged into the hot elevator carrying the materials to the gradation unit.

Steam was produced in a Cleaver-Brooks 150-hp boiler. Both boiler and dryer burned No. 5 fuel oil which was kept heated by steam coils in the 6,500-gallon storage tank. At the boiler, oil was also pre-heated electrically to a controlled temperature. Full automatic electric controls on the boiler provided all safety features, such as low water cutoff, automatic pump for water supply, and high and low burner controls.

Electrical energy for boiler controls and miscellaneous uses was generated by an International UD-9 diesel generator set. Two Buda diesels powered the plant's dryer and pugmill.

Asphalt cement, received in cars at Hibbing, was heated by steam furnished by the Duluth, Missabe & Northern Railroad. A Cleaver-Brooks No. 2 booster at the siding loaded the asphalt into a 1,500-gallon transport tank trailer pulled by an International K7 truck. At the plant, asphalt was stored and heated in a Madsen 6,500-gallon storage tank.

Water was hauled to the job in an old 3,000-gallon gasoline transport trailer pulled by a Dodge truck. At the plant, it was pumped into a storage tank for settling and then pumped automatically by electric pumps directly to the boiler.

#### Quantities and Personnel

Some of the quantities of pay items involved in the project were as follows:

Remove old concrete pavement	4,996 sq. yds.
Remove lip curb	3,138 lin. ft.
Excavation (ditch and slopes)	38,186 cu. yds.
Subbase	79,153 tons
Gravel base	164,273 tons
Water for stabilization	3,285,000 gals.
Road-mix bituminous base	12,072 tons
Plant-mix bituminous base	3,019 tons
Bituminous leveling course	4,415 tons
Bituminous binder course	19,512 tons
Bituminous wearing course	20,407 tons
Seal coat (RC-3)	32,700 gals.

Project superintendent for the E. W. Coons Co., Inc., was P. E. Maxwell. The job was under the supervision of District Engineer P. D. Mold. Project engineer for the Minnesota Department of Highways was E. A. Koeneman. M. J. Hoffmann is commissioner of the department.

THE END

#### Line of Pumps Described

■ A line of turbine-type and centrifugal pumps is illustrated in literature from the Aurora Pump Co.,

4610 Loucks St., Aurora, Ill. Specifications are listed for single and two-stage turbine-type pumps in capacities up to 150 gpm, at heads up to 500 feet.

Capacities of the single-stage centrifugal pump with horizontally split case are up to 4,000 gpm with heads up to 300 feet. The booklet also illustrates single-stage side-suction units with heads up to 190 feet. Details are also given on two-stage centrifugal pumps with horizontally split case.

Single suction sump pumps, non-clog pumps, mixed flow pumps, and condensation return units are among other types discussed. Data given includes detailed technical specifications and applications.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 586.

# Buy 'em by the YARD

When you buy bulldozing or grade-building equipment, you buy for one purpose: *to move the most yardage possible in the least amount of time.*

If you're in the market for new equipment, watch a Baker Bulldozer or Grader at work . . . and think about it in terms of yardage. Study its powerful, effective Roll-Action that boils the material higher . . . its Positive Down-Pressure that penetrates hard surface quickly and

stays down without "suck-in" . . . its Direct Lift with linkage *minimized* to reduce friction and power loss . . . and its Fingertip Control that gives operators *easier, more accurate* command of their work. And while you're there, look closely at the simple, rugged

design of a Baker Blade—built for longer wear-life with lowest possible maintenance.

After you've checked every profit-making feature on a Baker Blade, think about it in relation to *your* jobs . . . and you'll see why Baker Blades are bought for their ability to deliver the main objective: *yardage.*

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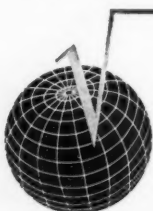
## Line of Tamping Rollers

■ The advantages of a new type cleaner teeth on the company's diamondfoot tamping rollers are explained in a new folder from the Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave., S. E., Minneapolis 14,

Minn. Schematic drawings and photos show other design improvements in the company's full line of sheepfoot and diamondfoot tamping equipment.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 551.

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The new Pioneer Model 33R, a single-unit rock-crushing and screening plant.

## Large Crushing Unit on Single Chassis

■ A single-unit rock-crushing and screening plant designed for the production of aggregates from local quarries has been announced by Pioneer Engineering Works, Inc.,

1515 Central Ave., Minneapolis, Minn. The Model 33R plant features a triple roll crusher that makes possible two almost simultaneous passes at the rock. The manufacturer points out that this permits placing all units of the plant on one chassis for faster and more economical operation and easier moving.

Units of the plant are large enough for quarry work and include an 18 x 30-inch jaw crusher, an apron feeder mounted on the plant, a 1½-deck sizing and separating screen, and a 30 x 18-inch triple-roll secondary or reduction crusher.

Weight has been kept to about 71,000 pounds without the power unit. Over-all length less towing hitch is 45 feet 10 inches. Moving height with apron feeder removed is 12 feet 6 inches and moving width, 9 feet 8 inches. The plant is suitable for road building and other projects where a large portable unit and easy plant setup are required.

For further information write to the company, or use the Request Card at page 18. Circle No. 552.

## Line of Heating Equipment

■ A new bulletin illustrates Cleaver-Brooks units used for heating, pile-driving, bitumen and road-oil heating in tank cars, storage asphalt plants, and ready-mix concrete plants. The equipment is also shown in aggregate drying, cold-weather construction operation, and in the curing of concrete block and concrete cast products.

The complete line covered includes tank-car heaters, bituminous boosters, the Peak-Temp oil boosters, the Deuce combination tank-car heaters and pumping boosters, as well as mobile, portable, and stationary boilers.

For further information write to the Cleaver-Brooks Co., 326 E. Keefe Ave., Milwaukee 12, Wis., or use the Request Card at page 18. Circle No. 540.

## Skil Relocates Branches

Four branches of the Skil Corp., 5033 Elston Ave., Chicago 30, Ill., manufacturer of portable electric and pneumatic tools, have moved to locations in new modern buildings with improved sales and service facilities.

The New York City office is now located at 2800 Park Ave.; the Baltimore, Md., office is now at 2323 Greenmount Ave.; 5616 N. E. Glisan St. is the new address for the Portland, Oreg., office; and 1620 E. Riverside Drive is the new location for the branch in Indianapolis, Ind.

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ELECTRIC  
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QUICKLY COMPACTS  
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ROCK COURSES  
OF REQUIRED  
THICKNESS!  
WORKING SPEEDS:  
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**MACADAM:** the JACKSON — in one pass — will sufficiently compact 12 inches of rock to support smooth rollers. In four passes, the JACKSON keys and compacts to final density. It takes just two passes for the JACKSON to completely fill voids from top to bottom of the course, when enough dry fines are spread on top in one application.

**IN GRAVEL SUB-BASES** (Blanket course) 7 inches thick, at optimum moisture, the JACKSON in one pass obtains densities exceeding 100% of Standard Proctor. Only with the JACKSON can the operator vary the frequency of vibrations as type of material and speed of travel may require.

**THE MACHINE** consists essentially of the proper assembly and suspension of individual JACKSON Vibratory Compactors mounted on a ruggedly designed carriage-tractor having correct working speeds from 0 to 60 ft. per minute, plus a fast reverse travel speed up to 5½ miles per hour.

**HIGHLY MANEUVERABLE** — The special tractor is mounted on 6 low-pressure pneumatic tires. Permits short turning radius without displacing rock or fines. Moves to various locations on job under own power.

**FAST** — Working speeds up to 60 feet per minute are possible in "choking" or vibrating in the fines because of high frequency of heavy duty vibratory motors.

**FLEXIBLE** — The JACKSON is available in a standard width of 13 feet, 3 inches. Units may be subtracted on job to meet conditions requiring narrower widths.

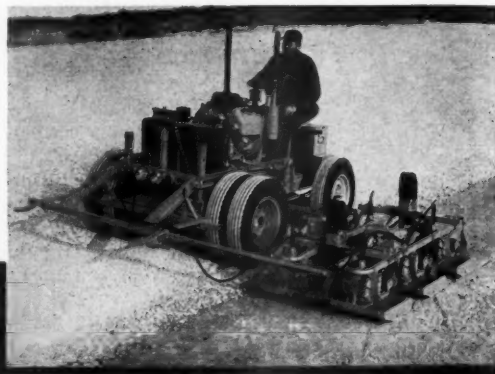
For areas inaccessible to Multiple Compactor, one 26" unit can be detached and fitted with operating handle (supplied with equipment) giving contractor a single, self-propelled JACKSON manually operated compactor which has received world-wide acclaim for granular soil compaction and bituminous patching.

**JACKSON VIBRATORS, INC.**  
LUDINGTON, MICHIGAN

## WIDENING STRIP COMPACTED IN ONE PASS

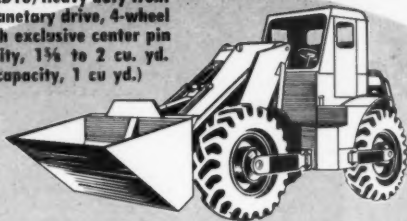
With simple equipment available, compactors may be assembled in tandem, 3 deep and in single or double row, and towed at the side of the tractor to give complete compaction of widening strip in one pass in all ordinary materials used for flexible base course widening.

Compactor bases of 12" width and up may be substituted for the standard 26" bases to fit any widening requirement. See your Jackson Distributor or write to us for details of this extremely versatile, multi-purpose, money-making equipment.

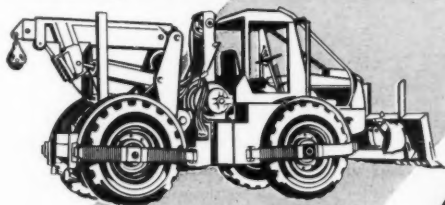




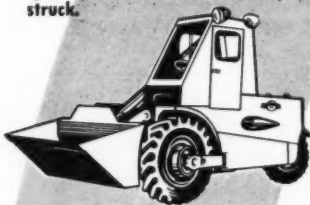
**SCOOPMOBILE (Model LD10)** Heavy duty front end loader. 4-wheel planetary drive, 4-wheel power steering through exclusive center pin hinge coupling. Capacity, 1½ to 2 cu. yd. (Smaller Model LD5—capacity, 1 cu yd.)



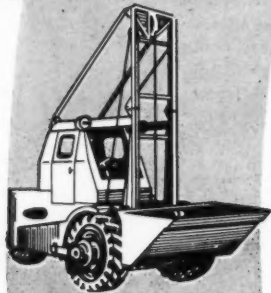
**LOGGERMOBILE (Model LG10)** 4-wheel drive, 4-wheel power steering. Hydraulically operated live arch and telescoping boom. Planetary drive winch. All purpose logger—skids, arch logs, loads.



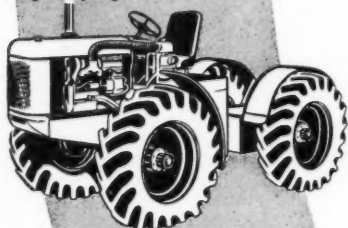
**SCOOPMOBILE (Model H)** Shovels, loads, transports all types of bulk materials. Four speeds either direction. Capacity, ¾ cu. yd. struck.



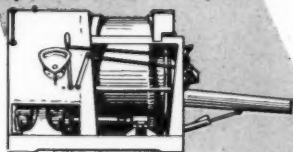
**SCOOPMOBILE (Model C)** Scoops, hoists, stacks and loads. Four speeds either direction. Capacity, ¾ cu. yd. struck.



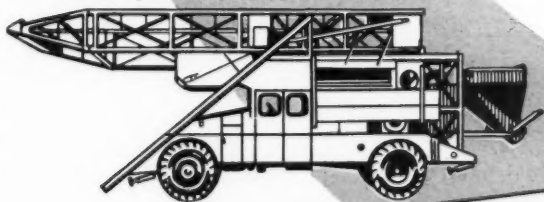
**TRACTORMOBILE (Model TR10)** Heavy-duty, general utility tractor. 4-wheel drive, 4-wheel power steering through exclusive center pin hinge coupling.



**SEMI-STATIONARY MIXERS.** Concrete mixing plants. Electronic water metering, hydraulic controls. Capacities, 1, 2, 3, or 4 cu. yds.



**TOWERMOBILE.** Mobile truck-mounted hoisting tower. 35-ft. open-faced tower raised and lowered hydraulically. Storage, 7½ cu. yd.



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# the MIXERMOBILE MIXERMOBILE MANUFACTURERS Production Line

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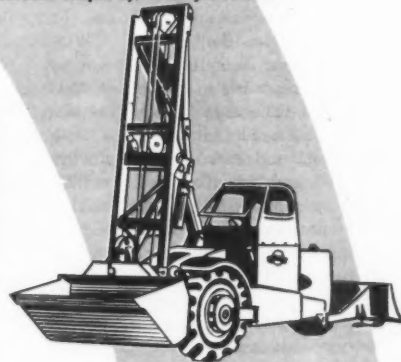
All over the world, in all types of industry, these rugged Mixermobile materials handling machines are showing the way to increased production, lower maintenance and operating costs. Hydraulic controls and power steering for ease of operation; 3-to-1 planetary-gear drive wheels for "knuckle-down" reserve power; high mobility, speed, and maneuverability both on the job and over the road are just a few outstanding work features. There's a profit-boosting Mixermobile unit job-designed to fill your materials handling need. It will pay you to get complete details!

*Send for literature*

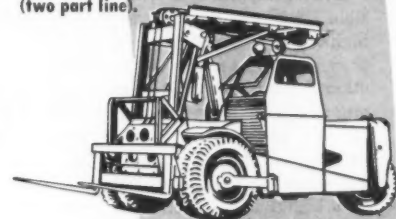
**DUO-WAY SCOOP.** Dozer at one end, scoop at other. Shovels, loads, transports, dozes, backfills. Four speeds either direction. (Model D52H—capacity, 1 cu yd. struck; Model D53H—capacity, 1½ cu. yd. struck).



**DUO-WAY SCOOP (Model D52B)** Scoop at one end, dozer at other. Side-saddle operator position. Upper track folds hydraulically for clearance. Capacity, 1 cu. yd. struck.



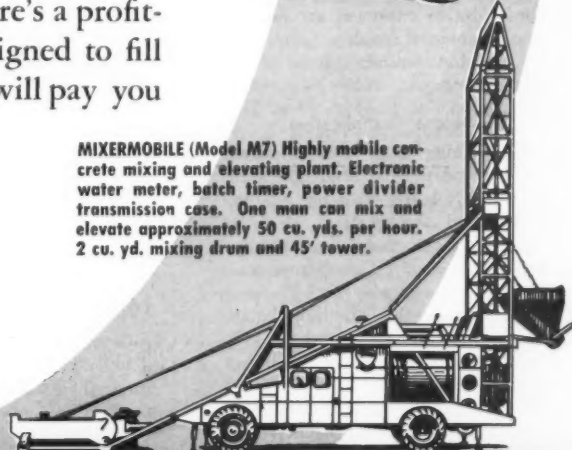
**DUO-WAY LIFT (Model DL2B)** Transporter and heavy-duty lift truck with folding track. Four speeds either direction. Capacity 12,000 lbs. (two part line).



**DOZERMOBILE (Model DM1)** Powerful, high-production tractor-doxer. 4-wheel drive, 4-wheel power steering through exclusive center pin hinge coupling.



**MIXERMOBILE (Model M7)** Highly mobile concrete mixing and elevating plant. Electronic water meter, batch timer, power divider transmission case. One man can mix and elevate approximately 50 cu. yds. per hour. 2 cu. yd. mixing drum and 45' tower.



**MIXERMOBILE  
DISTRIBUTORS, INC.**  
8027 N.E. KILLINGSWORTH STREET  
P.O. BOX 7527 • PORTLAND 20, ORE.

# Grading Is Speeded By Varied Machines



A twin-powered Euclid scraper picks up a healthy load unassisted. Two of these machines were used in grading some wet silty areas.

ONE OF THE MOST complicated grading jobs encountered on the U. S. 41 relocation project in Wisconsin was completed in August about five miles northwest of Milwaukee. The area is to be the site of a maze-like interchange with U. S. 45 and state trunk highways 55, 100, and 166. Six bridges will be employed at the intersection, making the project more elaborate than many modern turnpike interchanges.

In addition to the through, separated lanes, there will be many merging lanes plus a number of service drives which will give access to the adjacent property. At one point on the job, there are seven nearly parallel roadways.

Upon completion, it will be possible for traffic on any one of these highways to proceed through the area without grade crossings with other highways and to transfer to any of the other routes without the use of cloverleaf intersections or structures of more than two levels.

Construction of the superhighway was begun in 1950 and will probably be completed by 1955. The 73-mile route stretches from Milwaukee northwest to Fond du Lac, Oshkosh, and beyond. It parallels the old U. S. 41, but by-passes all centers of population. The old alignment winds through hilly country and is lined with commercial, residential, and farm structures. Its narrow pavements follow the contours of the hills, making restricted sight distance the rule rather than the exception. For this reason, the Wisconsin State Highway Commission chose to construct an entirely new alignment roughly paralleling the old but without many of its shortcomings.

## Traffic a Complication

Maintaining the heavy normal traffic along the old road while the new one is being built has further complicated the project, which is expected to cost more than \$12,000,000 exclusive of right-of-ways, engineering, and incidentals. The cost of the grading job at the interchange alone was nearly \$2,000,000.

Contracts for the interchange grading went to the Kramp Construction Co., Inc., Milwaukee, Wis., one of a multitude of contractors involved in the superhighway construction. The Wisconsin State Highway Commission has kept the size of individual jobs small so that they will be within bidding range of local firms.

Taking advantage of excellent fall weather, Kramp had two crews, working 58-hour weeks, move the major portion of the nearly 1,000,000 cubic yards of earthwork before activity was suspended for the win-

ter on November 22, 1952. The job had been started August 11. During one six-week period, there was not one interruption because of bad weather. The 1953 work started April 1; by August, the area was ready for paving.

Because the heavy traffic had to be maintained along the old highways, none of the old pavement was removed in 1952. Many cuts and fills were left partially completed until the old roadways could be broken up this spring. Traffic was

then rerouted onto already completed sections of the new highway.

## Topsoil Salvaged

One of Kramp's first problems was the location of storage space for some 60,000 cubic yards of top-

**ladder-type Trenchliners  
dig 16 inches  
to 6 FEET wide**

Parsons ladder-type Trenchliners,<sup>®</sup> in 3 heavy-duty sizes, cover a wide range of trench widths and depths. For example . . . maximum cutting widths are 36, 42 and 72 inches, depending on model . . . with digging depths of 8½, 12½, and 17 feet. In addition to big work capacity, notice the many production boosting advantages you get when you put one of these Trenchliners on your job . . .

## make vertical set-ins

Reverse traction lets Trenchliner hold the end of the digging boom flush with lateral ditch or against foundation wall . . . maintains a vertical face all the way down to bottom of trench.

## undercut sidewalks

Sloping ladder-type boom reaches far under sidewalks from both sides . . . also undercuts curbs and gutters, cross pipes, and existing mains. Saves hand work.

## hug curbs, buildings

When working next to curbs, fence rows or buildings, boom is shiftable across full width of carriage . . . digs behind either crawler. (Model illustrated cuts within 10 inches of side obstructions.)

## dodge poles

Spoil conveyor shifts through Trenchliner by power in less than 1 minute to dump right or left . . . side-steps poles, trees without swerving from grade line.

## load trucks

Arc-type spoil conveyor reaches up and out, loads into trucks. Discharge heights range from 6 ft.-4 in. up to 8 ft.-9 in., depending on model.

All these big production advantages are available to you in 3 sizes of ladder-type Trenchliners. Ask your Parsons distributor about the size best suited to your work. Also: 2 wheel-type Trenchliners, and small, rubber-tired Trenchmobile.<sup>®</sup>



**PARSONS Trenchliners**

PARSONS COMPANY, NEWTON, IOWA (Kochling Subsidiary)

CONTRACTORS AND ENGINEERS





One of the two Lincoln-equipped lubrication vans greases a Caterpillar D7 with Traxcavator. Equipment was serviced once each day.  
C. & E. Photo

soil which had to be replaced on the slope areas after the grading. In the maze of roads with their wide ditches and flat backslopes, there were few spaces around the 3-mile job in which the natural ground had not been disturbed. Careful plan-

ning solved this problem. The storage piles were so well placed that they blended in with the backslopes and looked like part of the natural terrain.

Usable topsoil was stripped with scrapers and stored in long low

piles by the scrapers themselves. At the conclusion of the grading operations, the same scrapers recovered the topsoil and placed it directly on the slopes in a 4-inch blanket.

For the earth-moving, five Super

C Tournapulls and a new Caterpillar DW21 were employed on the long hauls, which were often well over a mile in length. For the shorter hauls, six tractor-drawn LeTourneau and Gar Wood scrapers were used. The long-haul equipment was push-loaded by a pair of Allis-Chalmers HD-20 tractors. Ten Caterpillar D8's operated the scrapers, push-loaded, dozed, and performed other duties throughout the job.

Spot excavations for culverts, the removal of silt pockets, and other jobs of that nature were handled by several power shovels, including 105 and 106 Northwest cranes, a Universal truck crane, and an Insley backhoe. Six Studebaker 6x6 dump trucks with 7-yard boxes hauled most of the material loaded by the cranes. Caterpillar D4's and D7's with Trackson front-end loaders fed trucks from the stockpiles and loaded broken pavement and other materials.

Scrapers placed the fills in shallow lifts which were carefully compacted with sheepsfoot rollers pulled by Cat D2's. Six Caterpillar No. 12 motor graders maintained the haul roads to promote maximum haul speeds with the heavy rubber-tired equipment. They also assisted in leveling the fills, placing gravel base course, and in finishing operations.

Late in 1952, some wet silty areas were encountered which seemed to call for even more powerful equipment. Kramp hired two Euclid twin-powered scrapers and a single-engine Euclid scraper from the Cunningham-Ortmayer Co., Milwaukee. The rented equipment did the job without slowing up operations.

A fleet of five Super C Tournapulls, two Caterpillar D8's, and a Cat No. 12 motor grader, belonging to the R. W. Ryan Co., Janesville, Wis., was also rented to speed the earth-moving. The two shifts moved as much as 15,000 cubic yards of material per day.

Lubricating and maintaining equipment on the job was a full-time task for four mechanics and an equal number of greasers. Facilities for complete overhauls, as well as for minor repairs, were housed in a steel quonset hut. Inspection and lubrication took place during lunch stops, between shifts, and after regular hours. Two special vans equipped for on-the-spot servicing covered the job site. Mounted on Chevrolet truck chassis, the vans carried grease, oil, water, and air.

Lincoln lubricating equipment, including five grease reels, provided lubricants directly from barrels to fittings. Overhead water tanks on the vans were used to fill radiators. Electric power for night

(Concluded on next page)



221 Trenchliner cuts 16 to 36 inches wide, at depths to 8½ feet. Shiftable boom digs as efficiently behind either crawler as it does in center position. Power-shift conveyor gives controlled discharge . . . puts spoil bank well back from edge of the trench.



250 Trenchliner digs 16 to 42 inches wide, at depths to 12½ feet . . . has ample truck-height discharge. On ladder-type Trenchliners, spoil conveyor is independent of digging boom, maintains constant discharge height regardless of position of boom.



Big 310 Trenchliner, shown here with dual booms, has 6-foot cutting width, and 12-foot depth. When used with single boom, it digs 18 to 34 in. wide, 17 ft. deep. Buckets and side-cutters on all Trenchliners equipped with Parsons easy-in, easy-out "Tap-In" teeth.

### Kwik-Mix 10, 14 cu. ft. bituminous mixers

With Kwik-Mix non-tilting 10 and 14 cu. ft. Bituminous Mixers you get: wide flow-line skip, hinged skip track, pug-mill-type mixing, accurate heat control, even bitumen distribution, 6-second end discharge. Both sizes can be used with Tower Loader (shown) for stockpiling or loading trucks. Also available on skids as stationary plants. Other units: concrete; tilt, non-tilt plaster-mortar mixers; and Moto-Bug® (power wheelbarrow).

KWIK-MIX • Milwaukee, Wis.  
(Koehring Subsidiary)



### Versatile batch or transfer plant

As batch plant, Johnson Elevating Charger has a size 14 1000-lb. cement weigh batcher, hung under a 33-bbl. overhead storage hopper . . . or, to charge dual-batch trucks, two 1000-lb. weigh batchers can be used. It's quickly changed to transfer plant by removing batchers and cone, and bolting a 50-bbl. extension section to upper hopper. Easily moved and erected by dump truck, no crane needed. See your Johnson distributor.

C. S. JOHNSON • Champaign, Ill.  
(Koehring Subsidiary)



### Koehring ½-yd. hoe digs 17¾ feet deep

As a heavy-duty hoe, Koehring ½-yd. 205 digs 17¾ ft. below crawlers. 32-in. wide dipper is close-coupled . . . pulls tight up to the boom, avoids spillage. Long reach puts dirt far beyond edge of cut, or gives 10 ft.-4 inch clearance height to load into trucks. Converts to shovel, dragline, clamshell, or 10-ton crane on crawlers. Also available on rubber. Other excavators up to 2½ yards . . . and lift cranes up to 79½ tons.

KOEHRING Company  
Milwaukee 16, Wis.





A pocket of wet clay and silt is turned over for aeration and drying by a Caterpillar D8 with U dozer. The twin bridges in the background are two of the six included in the interchange.  
C. & E. Photo

## Grading Is Speeded

(Continued from preceding page)  
lighting and emergencies came from Novo 7.5-kilowatt generator sets. The vans also carried air compressors and large fire extinguishers.

On several occasions where the grading was completed in 1952, the backslopes sloughed very badly by the time work was resumed last spring. Silt pockets containing ground water oozed out into ditches, leaving large depressions in the

banks which were otherwise exceptionally smooth. The same material filled the ditches and obstructed drainage. The bad situation was remedied this year by digging out the silt pockets with a dragline and backfilling the holes with more stable material.

With the several grade separations, and with cuts up to 23 feet deep and fills over 30 feet high, there were many slopes to be finished. Some of the steeper banks were ripped, but in most cases

they were graded smooth and covered with four inches of topsoil. Tractor-drawn scrapers, dozers, or motor graders were used to finish the slopes. After the paving work has been completed they will be seeded.

## Gravel Base and Subbase

A sand-gravel subbase and crushed-gravel base were carefully placed and compacted after the grading was completed, making the surface ready for concrete paving. Sell Bros., Appleton, Wis., produced and delivered the 170,000 cubic yards of subbase and the more than 150,000 cubic yards of base material. The crushing and screening plant was set up in a nearby pit. Material was delivered to the road as quickly as the grading operations permitted.

The hauling and placing of base and subbase material continued even after grading work had ceased. During the winter, Sell Bros. continued operations, building a stockpile to be used on sections completed when work resumed.

The base and subbase were bladed, watered, and compacted with motor graders, sheepfoot rollers, and rubber-tire rollers.

The grading job actually consisted of two separate contracts, one in Milwaukee County and the other in Waukesha County. Kramp also has the contract for the paving on the Milwaukee County side, which is where the six grade separation structures are to be located. The job calls for 164,000 square yards of 9-inch uniform concrete pavement.

## Quantities and Personnel

Total quantities for the two contracts included:

Remove pavement	76,745 sq. yds.
Excavation	933,564 cu. yds.
Sand-gravel lift	167,665 cu. yds.
Crushed-gravel base	153,554 cu. yds.
4-inch-thick topsoil	713,500 sq. yds.
Culverts (8 to 72-inch-diameter)	15,200 lin. ft.

At the peak of employment, there were more than 200 workmen on the project. Oscar Schaefer was superintendent for Kramp, and Donald Cronkite was resident engineer for the Wisconsin State Highway Commission, which is headed by Emmons L. Roettiger, state highway engineer.

THE END

## New Hydraulic Hoists

The introduction of two completely new arm-type hydraulic hoists for on or off-highway application was recently announced by Gar Wood Industries, Inc., Richmond Division, Richmond, Calif. The Models 2825 and 2025 hoists have 25 and 30-ton payload capacities and feature 70-degree dump angles.

Features include clevis-type bushings at all pivot points and cylinders that open at both ends.

The manufacturer states that the new three-piece hydraulic pumps provided with the hoists are precision-made for high capacity without slippage. Parts are interchangeable without hand fitting or use of shims for simple maintenance in the field. Scoop-end rock bodies sold with the new hoist line have boxed side braces to give a rigid body.

For further information write to the company, or use the Request Card at page 18. Circle No. 612.

CONTRACTORS AND ENGINEERS

## Garrison Hydraulic Boosters Make Steering EASY!

"Finger-tip" Control—Under ALL Conditions

Garrison Hydraulic Steering Boosters take the work out of steering! Hydraulic power makes possible "effortless" steering on the heaviest trucks and off-the-road equipment. Even in the roughest terrain, tiring "wheel fight" and "road jolt" are eliminated. Drivers stay fresher; cover more miles per day. Equipment lasts longer; requires less maintenance. Maneuverability is greatly increased, making it easy to get in and out of tight spots. And greater control when a tire blows out or other emergencies arise assures greater operator and equipment safety.



Important news!  
Garrison Booster Units are now available for International Harvester Series LD 300-LD 400 trucks.



Garrison Booster Unit installed on this LFD 410 I.H. truck supplies power for easy, "finger-tip" turning; absorbs heavy jolts from rough roads.

**GARRISON**  
Manufacturing Co.

1500 SOUTH SANTA FE AVENUE • LOS ANGELES 21, CALIFORNIA

## Put Garrison Power Steering to work for you!

Garrison Hydraulic Steering Boosters are available for most makes and models as factory-approved original equipment. They're also available in kit form for easy installation in the field. Ask your dealer or write direct for full details!

## BLACKHAWK Trench Hog

A LOW COST, MOBILE  
VERSATILE, TRENCHER

A Ford or Ferguson tractor mounted, versatile, small trencher with big trencher performance, digs up to 800' per hour, with wide range of depths and widths—up to 7' deep, 20" wide. One man and a Trench Hog do the work of 40 hand laborers. Ideal for builders, plumbers, electrical contractors, utilities, municipalities and pipeline contractors.

- Depths accurately controlled, hydraulically.
- Cutters furnished in 6" to 20" widths. Easily changed to suit the job. Special cutters for tough soils and frozen ground.
- Optional equipment includes one side dirt delivery attachment to deposit spoil on either right or left side of trench.
- Crumbers available to provide clean, smooth, accurate trench bottom.
- Choice of 7 digging speeds.
- Independent wheel control for straighter line trenching and turning corners.
- Boom raises upward about 90° for transport. 4' bulldozer available for backfilling.

THOUSANDS IN USE — EVERYWHERE

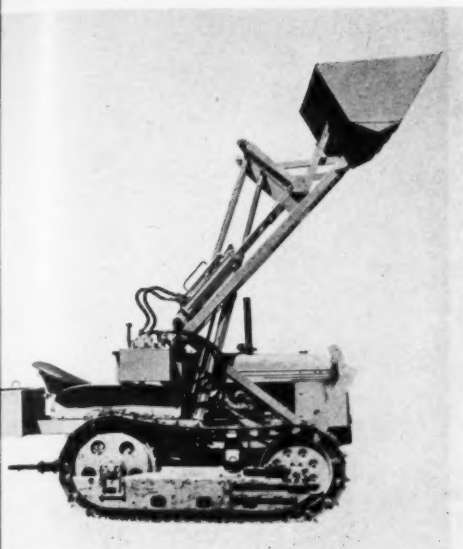


**ARPS**  
CORPORATION

Dept. C, NEW HOLSTEIN, WIS.

PRODUCTS FOR BETTER FARMS,  
BETTER INDUSTRIES SINCE 1920





The new Henderson hydraulic front-end loader for the Oliver OC-3 tractor.



Part of 250 tons of equipment moved 5 1/2 miles by E. A. Gallagher, Philadelphia, Pa., from a creek at Repaupo, N. J., to the Delaware River. The machinery, including a 181-ton suction dredge, was hauled in a pair of Rogers 50-ton low-bed trailers and two Rogers 75-ton dollies. The 20 trips of actual hauling were completed in a day. To refloat the dredge, Gallagher built a special ramp at the river and "winched" the dredge onto it. The lift of the 6-foot tide did the rest.

### Tractor-Loader Unit

■ A loader for use on the Oliver OC-3 tractor is announced by the Henderson Mfg. Co., 1203 Rockford Road, S. W., Cedar Rapids, Iowa. The Model F loader has a 1/2-yard bucket capacity and is powered by a front-end pump. Control of the loader and attachments is by the twin cylinders.

The new loader can be used for excavating, filling, ditching, landscaping, grading, and snow removal. It is equipped with an automatic bucket-leveling device and bucket positioner which indicates the level of the bucket to the operator on the tractor seat. In digging position, no part of the loader is higher than the tractor so that there is good visibility. Attachments available include dozer blades, snow buckets, and booms.

For further information write to the company, or use the Request Card at page 18. Circle No. 609.

### Diesel Service Kit

■ A new service kit for reconditioning diesel injector tubes is available from Kent-Moore Organization, Inc., 5-105 General Motors Bldg., Detroit 2, Mich. Designed for use on GM diesel engine Models 2, 3, 4, and 6-71, the new kit includes all tools necessary for the entire reconditioning operation. Tool set No. J 5286 includes tap, tap holder, tap driving rod, installer body, installer pilot, installer flaring die, first-operation reamer, second-operation reamer, and tube-tip refinisher.

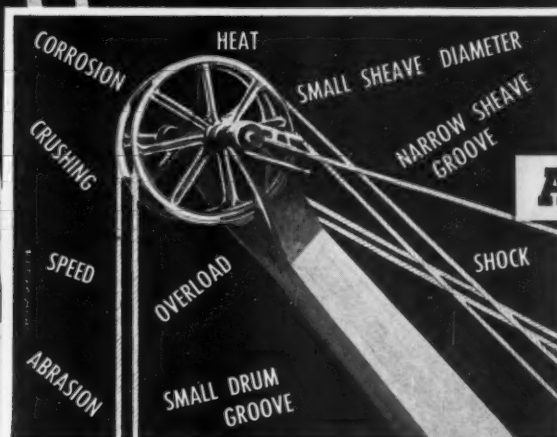
For further information write to the company, or use the Request Card at page 18. Circle No. 538.

### Wire Rope Slings

■ New literature on wire-rope slings is available from the Leschen Wire Rope Division of the H. K. Porter Co., Inc., 5909 Kennerly Ave., St. Louis 12, Mo. It describes the new line of Red-Strand multiple-part slings and the company's pin-lock thimbles. The folder also discusses new single-part slings equipped with single-swaged fittings. Grommet slings are covered as well.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 565.

## reduce your WIRE ROPE costs



### BERGEN APPROVED

wire rope  
lasts longer —  
costs less to  
buy — less to  
maintain . . .

Under ordinary operating conditions wire rope is subjected to many different kinds of wear. Friction, shock, bending, abrasion, corrosion are some of the most common destructive forces. But modern wire rope designing has made available such wide selections of metals and rope constructions that even the most difficult service requirements can be overcome.

When wire rope is properly selected to meet specific operating conditions it will cost less — serve better — last longer.

That is why *Bergen Approved Wire Rope* gives such satisfactory and economical service to its users. The Bergen system of writing wire rope specifications assures every buyer that he is getting the best possible rope to meet his particular operating conditions. Let us show you how we have helped hundreds of users to make substantial savings on their wire rope purchases.

Write today for *BERGEN'S*  
"Guide to Selecting Wire Rope."



BERGEN

WIRE ROPE COMPANY

Gregg Street, Lodi, New Jersey



## Blasting Techniques

■ The first issue of a quarterly technical bulletin designed to help construction engineers, mine and quarry operators, pipeline builders, and other users of industrial explosives, has been published by the Atlas

Powder Co., 904 Market St., Wilmington 99, Del. The 4-page illustrated bulletin, entitled "Better Blasting", describes modern blasting techniques.

To obtain this bulletin write to the company, or use the Request Card at page 18. Circle No. 526.

## "BERG" Concrete Surfacers



A light-weight, portable, electric motor-driven Concrete Surfer consisting of the Model R2 Right Angle Head and Model AS Motor Unit.

Ideal for surfacing concrete buildings, bridges, dams, walls and many other applications.

Quickly converted into the Model V2-AS Concrete Vibrator for internal vibration by substituting the Model V2 Vibrator Unit for the above Head.

The Concrete Surfacing Machinery Co.  
4665-4669 Spring Grove Avenue Cincinnati 32, Ohio



The Model HTD-500 Multi-Pug asphalt mixer made by K. E. McConaughay.

## Portable Asphalt Plant

■ The latest model in the line of portable asphalt mixers made by K. E. McConaughay, 217 N. 6th St., Lafayette, Ind., is announced. The Model HTD-500 Multi-Pug asphalt mixer is suitable for hot or cold patching in any season under wet or dry conditions. The machine handles on-the-job mixtures of asphaltic concrete, sheet asphalt, sand asphalt, or mastic asphalt.

The unit reactivates and heats stockpile mixtures at a rate up to 15 tons per hour. Capacity is 30 tph for cold asphaltic mixtures and ten tph for hot mixtures. The machine dries various types of wet aggregates and removes both moisture and solvents from bituminous mixtures. It processes tars, paving asphalts, cut-back asphalts, and emulsified asphalt.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 513.

## Equipment and Accessories for Concrete Forming

■ Concrete-forming equipment is illustrated in a booklet from the Symons Clamp & Mfg. Co., 4249 Diversey Ave., Chicago 39, Ill. The booklet discusses the company's forming system, safety shores, and line of column clamps.

Symons standard panels are built in modules of 2 feet. They are 2 feet wide; either 4, 6, or 8 feet high; and can be used vertically and horizontally in combination for any height of wall. Panels with steel ribs every 12 inches are recommended for pouring concrete walls with pressures from 650 to 1,500 psi. There are also lighter panels with steel ribs 24 inches on center. The discussion of the forming system includes details on the hardware, various types of corners, bracing and scaffolding, runways, job-built fillers, and the use of strongbacks.

The section devoted to the Symons safety shore illustrates metal scabs, extensions, and T and L-heads for the shore. A table lists safe load capacities for various heights. The shores can be provided with means for quick extension to lengths up to 23 feet.

Specifications are also given for square and rectangular column clamps. The equipment may be rented with purchase option.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 604.

CONTRACTORS AND ENGINEERS



## Me? Ride to work on wire rope?

That's right. In the course of a year this young lady may travel as much as 150 miles with the aid of wire rope that safely and swiftly whisks her elevator aloft and then just as safely returns it to ground level. It's quite likely that she gets to her job with an

assist from Wickwire Rope. Here again—as in so many other fields where wire rope is used—men who manage and maintain the nation's tall buildings have learned to place unbounded faith in the safety and reliability they get from Wickwire Rope.

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE



THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa  
PACIFIC COAST DIVISION—Los Angeles • Oakland Portland • San Francisco • Seattle • Spokane  
WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga Chicago • Detroit • Emlenton (Pa.) • New Orleans • New York • Philadelphia

1854

**WICKWIRE ROPE**

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION  
THE COLORADO FUEL AND IRON CORPORATION





The new Mix-Elvator prepares material for a Bondactor gun.

### Machine Prepares Mix For Concrete Gunning

■ A combination proportioning, mixing, and elevating machine for use with concrete gunning equipment is announced by the Air Placement Equipment Co., 1009 W. 24th St., Kansas City, Mo. The Mix-Elvator is a portable self-contained unit that operates from the stockpile and delivers mixed material into the concrete gunning machine. Cement is fed into the unit's lower hopper through a chute on the left side, while sand or other aggregate goes through the screened entrance in the middle. A hand wheel operates the proportioning gate. The materials are mixed by tumbling action, then elevated to the overhead loading hopper and fed to the concrete-gunning machine. The new unit features an adjustable ratio control that permits an accurate mixing range from 1:3 to 1:8.

To make for continuous operation under all conditions while working with all types of gunning equipment, the machine's engine speed can be adjusted to give a mixing and elevating capacity from 2½ to 8 cubic yards per hour. The operator can recharge the machine as needed by means of the gate valve in the overhead hopper chute.

The screening arrangement and the single clutch control make it possible to handle the material or aggregate only once during the complete mix cycle. Provided the stockpile is conveniently located, one laborer can handle the entire operation.

For further information write to the company, or use the Request Card at page 18. Circle No. 512.

### Long-Range Excavators

■ A brochure on long-range material-handling machines is available from Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill. Line drawings are used to provide a simple explanation of how the drag scraper, slackline cableway, and tautline cableway operate. Other scraper systems for excavating and for open storage, and the use of scrapers on boom machines are also shown.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 568.

### Euclid Appoints Sutherland

In charge of all Euclid operations in Illinois, Wisconsin, three northwestern Indiana counties, and the eastern half of Missouri is W. P. Sutherland, who has been appointed district manager of the newly created

middle-west territory of the Euclid Road Machinery Co., Cleveland 17, Ohio. W. R. Brown succeeds Mr. Sutherland in Minnesota and the upper peninsula of Michigan outside the Iron Range. Euclid is a division of the General Motors Corp.

### Trailer-Mounted Floodlight Unit NITE-HAWK

MAKE NIGHT HOURS PAY with NITE-HAWK

Four 80,000 c.p. flood lights raise to 8½ ft.—aim in all directions. Control panel has duplex receptacles for extension light and power tool lines — voltage regulator — circuit breaker — fused circuits.

Tows at highway speeds on heavy-duty trailer with leaf springs—retractable caster wheel. This is the finest, most flexible unit available. Also low-cost, dependable 500 watt to 20 k.w. gas-electric plants.

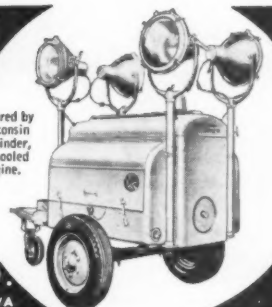
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TEL. 236

NEWTON, IOWA

Powered by Wisconsin 4 cylinder, air-cooled engine.



## EEC EARTH EQUIPMENT CORP.

Proudly Presents  
the New 1954

# Everett Trencher

New in design . . . loaded with features  
to make this model America's  
most wanted Trencher



FOR FORD  
& FERGUSON  
TRACTORS

### Note these New Great Advantages

- ★ NEW built-in Rock Guard
- ★ NEW single wheel design gives faster penetration
- ★ NEW "V" Power Drive with V Belt Safety drive
- ★ NEW easily accessible controls

Famed as the equipment that equals the pick and shovel work of 25 men. As mobile as the tractor itself, the Everett Trencher cuts clean straight trenches up to 42" deep, 12" to 18" in width. The answer to industry's need for a tractor-driven trencher. A compact, rugged, versatile piece of equipment that operates from the power take-off of the tractor—raised and lowered by built-in hydraulic system. Quickly installed.

A "V" belt safety slip feature is built into the drive of the trencher which automatically stops the bucket line and prevents damage when obstructions such as pipe lines, heavy roots, large rocks, and foundations are encountered. For farm drainage and irrigation ditching, housing projects, cemeteries, foundation work, water, gas, oil, electricity and power line ditching.



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EARTH EQUIPMENT CORP.,  
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I am interested in the following equipment

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#### THE EQUALIZER

"Set it and Forget it." That's what owners say about the EQUALIZER. Eliminates implement bobbing.



#### THE MCGEE ANGLE DOZER

Moves dirt ahead—to the right or left. Dual Hydraulic Ram Control. Mid-Tractor Mounted for High Clearance.

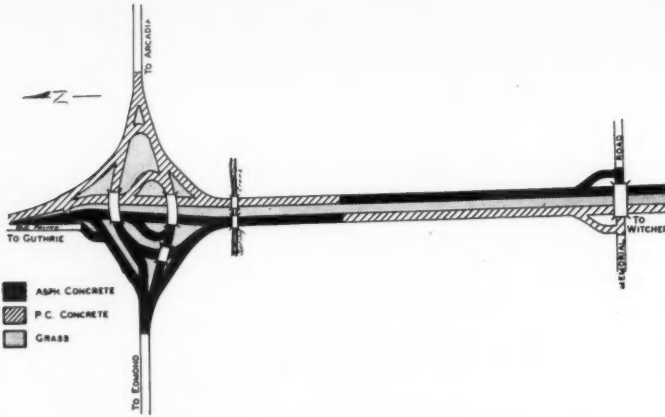


#### THE MCGEE SCRAPER

"Fingertip Magic" hydraulic control! Scary—Scrape — Back Fill without leaving the driver's seat.



# Concrete and Asphalt for Testad



PRELIMINARY WORK on a test road paved with portland-cement concrete and asphaltic concrete is under way in Oklahoma where a divided four-lane highway is to be built from Witcher Junction north to the present junction of U. S. 66 and U. S. 77,

east of Edmond. Each type of pavement will have the same soil conditions and be subjected to the same type and volume of traffic. The road is being built by the State Highway Commission and is similar to a project now under construction in project being built in Indiana.

On the southern half of the test road, the southbound side will be of portland-cement concrete and the northbound side of asphaltic concrete. On the northern half of the road, the arrangement will be reversed. This checkerboard system will not only allow both types of pavement to be laid over the same types of soil, but will equalize northbound and southbound wheel-loads on each type.

## Design

Recommendations for the respective pavements from both the Asphalt Institute and the Portland Cement Association are being evaluated by the highway commission for load capacity and compliance with the general design requirements. Soil tests will be made after grading work is finished. When bearing values and general characteristics of the soils have been determined, the design of subbase thickness and base and surfacing materials for both types of pavement will be made.

Each side of the divided highway will have 24-foot-wide pavements. There will be a 30-foot-wide median strip. Outer stabilized shoulders

Command the market for low-cost aggregate with the

**Cedarapids**  
Built by IOWA

# Commander



## HERE'S WHY YOU MAKE MORE PROFIT WITH THE COMMANDER

- Big 30' x 22' Roll Crusher provides the increased secondary crushing capacity required for meeting today's specifications for smaller sizes of crushed aggregate.
- Large 48' x 10' Horizontal Vibrating Screen gives extra screening capacity to balance the greater roll crusher output.
- 30' wide conveyors throughout the plant easily handle the high capacity. The Commander is designed to eliminate any possibility of bottlenecks.
- You get this increased capacity with no increase in maintenance or operating costs! That's the Commander's profit-benefit to you.

## WRITE TODAY FOR BULLETIN COM-1

It contains complete details of all the features that make the Commander "the plant of the year" for low-cost aggregate production.



TODAY, as never before, you need big volume output and low-cost production to command the market for aggregate.

That's what you get with the Cedarapids Commander!

The Commander Plant shown above produced between 300 and 400 tons per hour of 1 1/4" material with 20% crushing, and the two draglines feeding it couldn't keep it up to full capacity!

Low maintenance and operating costs, the result of Cedarapids-Quality construction and field-experienced design, keep production costs at absolute minimum.

For today's stiff competition, the producer who turns out more tons per hour, at less cost per ton, is top man on the profit pile.

Ask your Cedarapids distributor to show you all the Commander advantages.

**IOWA MANUFACTURING COMPANY**  
Cedar Rapids, Iowa, U. S. A.



Master Bituminous Mixing Plant



Vibratory Soil Compactor



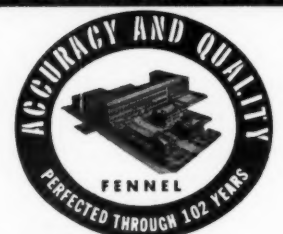
Motorized Head Pulley



Model G-60 - 6000-lb. Bituminous Mixing Plant

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INSTRUMENTS



"NITAC" — World's only level with split bubble, erect image. One of many super-fine levels, transits, theodolites, made by Fennel's old-world craftsmen. Performance-proved in 58 countries. Send for particulars, prices.

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CONTRACTORS AND ENGINEERS



98' 0"

24' Side Conc

3' Grass Median

24' Conc Surf

10' Side Ditch Surf

3' Grass Median

24' Side Conc

10' Side Ditch Surf

ASPH CONC

24' CONC

24' CONC

SUB BASE

NATIVE SOIL

TYPICAL PAVING SECTION

45

## Power-Shovel Construction

■ The package-component design of the Lorain TL series of power shovels and cranes is explained in new literature from the Thew Shovel Co., 28th St. and Fulton Road, Lorain, Ohio. In the packaged-assembly design of the turntable, all major assemblies such as hoist-shaft, clutch-shaft, and engines are built as integral sub-units for ease of assembly, disassembly, and service.

To show this graphically the company made its booklet, which consists of rotogravure printing on transparent acetate film, so that the various assemblies in the machine can be superimposed on each other as they are in the actual machine.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 645.



The Rivinius snow loader blades up snow and blows it into a truck or to the roadside.

## Snow Loader Unit Attaches to Grader

■ A snow loader that attaches to the moldboard of the Caterpillar No. 12 or No. 112 motor grader is made by Rivinius, Inc., Eureka, Ill. The loader fastens to the moldboard at a 90-degree angle, forcing snow to feed into the blower in a straight line. Hydraulic power is used to change the angle of the blade to conform to various operating conditions. Snow and ice are bladed into the power-driven fan and blown directly into the dump truck or to one side.

The manufacturer states that the blower reduces the snow bulk 25 to 50 per cent to cut down trucking costs. There is no windrowing, and

the snow is handled once. The operator has full view of the entire snow removal operation.

For further information write to the company, or use the Request Card at page 18. Circle No. 574.

## Watson-Stillman Expands

A \$250,000 expansion of plant and manufacturing facilities has been undertaken by the Watson-Stillman Fittings Division of H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh 22, Pa. The division manufactures forged steel fittings.

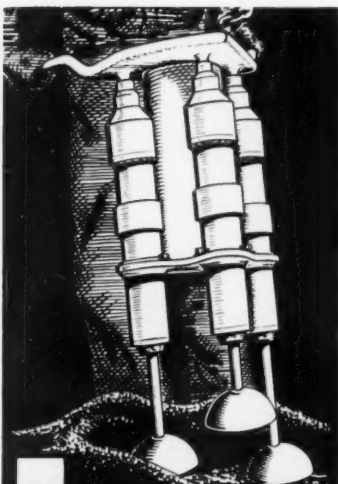
The expansion program includes additional land, buildings, and the installation of specially designed automatic machine tools for increased production.

## Symons Clamp Enlarges Southern Territories

Two southern regional representatives of the Symons Clamp & Mfg. Co., 4249 Diversey Ave., Chicago, Ill., manufacturer of forms, shores, and column clamps for the Symons concrete-forming system, have been given additions to their sales territories.

The territory of William Nailen, 1037 W. 46th St., Birmingham, Ala., has been expanded to include Mississippi. Mr. Nailen continues to represent Symons in Alabama, Georgia, Tennessee, and North and South Carolina.

Louisiana has been added to the territory of Vernon L. Mock, 2246 Eubanks Ave., Oklahoma City, Okla. Mr. Mock has been covering Texas, Arkansas, and Oklahoma.



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**The SUPER  
TRIPLEX  
Backfill Tamper**  
*saves money  
3 ways!*

**30% in tool  
investment!**

**50% in compressed  
air consumption!**

**75% on backfilling  
costs!**

The Super Triplex, by the originators of multiple tampers brings you super power... super coverage... super efficiency!

Regular Triplex Tampers also available!

Contact your equipment dealer or

**GUNDERSON-TAYLOR  
MACHINERY COMPANY**

1201-1237 Shoshone Street  
Denver, Colorado

## How One CONTRACTOR MADE MONEY



**with a WILLARD "Task Force"**

**... on 3 jobs and moved 371 miles  
and placed 10,000 C. Y. in '53**

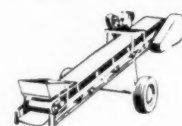
COMPLETELY FREE from central-mix plants and plant erection costs, this contractor handled three specification concrete jobs and moved his Willard equipment a total distance of 371 miles. They were extra profitable because he used the completely mobile Willard self-loading Weigh-Batcher, Conveyor and two Truck Mixers. He batched and mixed up to 30 cu. yds. per hour on the job using stock piled aggregates and bulk cement. There were no erection costs beyond digging a shallow pit for the foot of the conveyor... no loss of time by placing crews waiting for deliveries... and no shipping costs because the equipment moved on its own wheels under its own power.

If you are missing those profitable out-of-town jobs it will pay you to get the facts; write for the "Willard Way" booklet.

Manufactured in Los Angeles, California and Galion, Ohio  
**WILLARD CONCRETE MACHINERY SALES CO.**  
11700 WRIGHT ROAD, LYNWOOD (LOS ANGELES COUNTY), CALIF.



WILLARD  
Weigh-Batch Loader

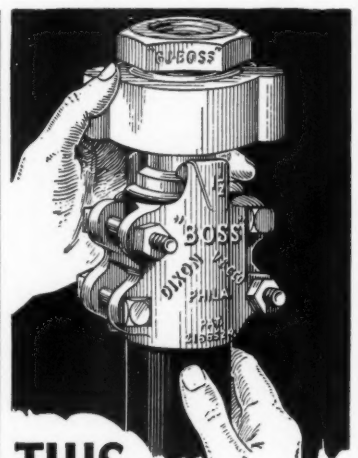


WILLARD  
Mixer Loading Conveyor



WILLARD Truck Mixer

**BATCH and MIX on the job!**



**THIS  
Washerless  
COUPLING**

has no equal for efficiency, durability and safety in every high or low pressure hose service... steam, water, gas, air, oil, hydraulic. Ground joint union between stem and spud provides leakproof, trouble-free seal. Furnished with super-strong, "Boss" Offset and Interlocking Clamp.

**"GJ-BOSS"**  
GROUND JOINT  
FEMALE COUPLING  
STYLE X-34

All parts steel or malleable iron, thoroughly rustproofed. Sizes 1/4" to 6", inclusive.

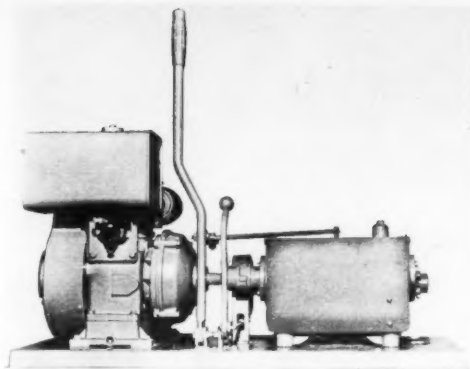
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DIXON VALVE & COUPLING CO., LTD., TORONTO, ASSOCIATE COMPANIES  
Dixon Valve Company, Inc., Springfield, Pa.; Phoenix Valve Steel Company, London, E.C.

CONTRACTORS AND ENGINEERS





The Rollpac transmission unit made by Soilaire.

### Transmission Unit For Construction

■ A portable integral power transmission unit is announced by Soilaire Industries, 1200 Second Ave., South, Minneapolis, Minn. The Rollpac transmission can be used as a power unit, a winch, portable hoist, tugger, or transmission element for machine tools.

A Briggs & Stratton 5-hp engine with a 6:1 reduction is connected to an oil-tight transmission containing two Maxitorq disk clutches in line on a single shaft for forward and reverse drive. The transmission is 2:1 reduction and has a brake and a shifting lever. The entire unit, weighing 186 pounds, is mounted on a framed steel base 38¾ inches in length with four studs for locking in position.

For further information write to the company, or use the Request Card at page 18. Circle No. 553.

### Truck-Body Spreader

■ A bulletin on a spreader body for ice control is available from the Baughman Mfg. Co., Shipley Road, Jerseyville, Ill. The new Spreadmobile line features a center spread design that spreads sand, cinders, and calcium chloride from the center of the body under all four wheels. This gives improved traction and provides complete visibility of the spread pattern.

Other improved features include complete hydraulic operation of the drag chain and distributor with all controls in the cab to allow one-man operation of the unit. The spreader body is a split-bottom dump suitable for year 'round use. An exhaust heater prevents load freezing.

To obtain this literature write to the company for Bulletin No. A-370-H, or use the Request Card at page 18. Circle No. 525.

### Esco Personnel Changes

Roy C. Weeks, sales engineer for Electric Steel Foundry Co., Portland, Ore., has been transferred to Esco's Medford, Ore., branch where he will head sales of power transmission, logging, sawmill, and construction equipment in the southern Oregon and northern California territories. Mr. Weeks replaces Ralph E. Filsinger who has taken up new duties in the production control department of the Portland office.

The Medford branch was set up three years ago and distributes Dodge, Moline, and Morse, in addition to Esco.

### Throttle-Control Unit

■ A new friction-type throttle control that holds the engine speed of gasoline or diesel-powered equipment constant is announced by the Link-Belt Speeder Corp., 1201 Sixth St. S. W., Cedar Rapids, Iowa. The new throttle control, which provides for an infinite range of engine speeds, can be used on shovels, crushers, and other construction machinery. The control can be easily mounted in the field, and no adjustment is necessary to compensate for engine size or type.

For further information write to

the company, or use the Request Card that is bound in at page 18. Circle No. 544.

### Dravo Moves D. C. Office

The Washington, D. C., office of the Dravo Corp., 1203 Dravo Bldg., Pittsburgh 22, Pa., is now located at 48 Court St., Ellicott City, Md. The mailing address is P. O. Box 204.

The move was made to enable the firm, which manufactures concrete buckets, grouting machines, hoists, and ventilators, to serve better its customers in Baltimore, Washington, and the surrounding territory.



● This Adams "550" Motor Grader (100 hp.), owned by A. E. Oblock Construction Co., is relocating 7 miles of road in the rugged mountains of Pennsylvania.

Mr. Oblock will tell you that he likes his Adams "550" for many reasons—its power, fuel economy and high-speed operating advantages in both forward and reverse gears. These high-speed advantages stem directly from the new Adams Constant-Mesh Transmission, the latest and finest ever put into a motor grader. It is, in fact, the only transmission providing 8 forward speeds, up to 26 mph., and 4 reverse speeds, up to 13 mph.

You will find that Adams Motor Graders have more time- and money-saving advantages than any others on the market—bar none... advantages that pay off in more work per day, with less effort and greater economy. (See listing at right.)

For convincing proof of Adams superiority, ask your local dealer to demonstrate one of these high-speed, high-performing machines—on one of your own jobs. Phone him today!

**J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, IND.**

### Only ADAMS Offers All These Features:

- NEW CONSTANT-MESH TRANSMISSION—quick, easy, positive gear shifts.
- 8 FORWARD SPEEDS—up to 26 mph. for fast transport.
- 4 REVERSE SPEEDS—up to 13 mph. Save time on shuttle work.
- 3 CREEPER SPEEDS—low as ¼ mph. (Optional).
- RUBBER-MOUNTED ENGINE—floating power—no vibration transmitted to grader.
- DUAL BRAKING SYSTEM—quicker, easier, safer stops, with less effort.
- FOOT ACCELERATOR—for easier, safer overland travel.



## Electronic Secretary Accurate, Saves Time

*Modern dictating machines can help busy chief engineers and superintendents to do a faster, more efficient job*

MODERN CONSTRUCTION is a highly mechanized business. It ranks high among those industries that are leading the way in replacing human

effort with the benefits of low-cost mechanization. It has loudly extolled the virtues of the mechanical age at conventions and in the trade

magazines. But it has not yet accepted the machine as a substitute for human energy in one important part of its operations.

Modern highway bank sloping is done by motor graders instead of by labor crews. Automatic welding is a fairly common thing in construction. Large concrete slabs, formerly finished by men, are now smoothed by multiple machine trowels. But in far too many contracting and engineering offices, especially at the field level, you can still find men whose time is valuable and important writing first draft memoranda and other communications in longhand.

It's horse-and-buggy communications in the atomic age, and it's one of the most incongruous things in the construction business today.

It is true that the green-visored cap has just about disappeared. Secretaries are no longer uncommon to the offices of superintendents and chief engineers. But there is still a very real doubt as to whether or not these busy men are taking full advantage of their time, so far as the communications end of administrative matters is concerned.

Given the chance, modern electronic dictating machines can save a great deal of effort. Their numerous advantages are so obvious, it is surprising how few of them are found in construction offices. The superintendent who uses one can halve the time it takes him to answer his daily correspondence manually. It enables him to perform this task in the manner most efficient for him. He can sandwich the dictation in between conferences and other chores. His secretary or stenographer can transcribe his dictation in the same way, arranging her time to the best advantage.

One of the greater sources of misunderstanding in modern construction is the conference between owner and contractor where extra work and change orders are involved. No matter how carefully the minutes of such meetings are kept, controversies arise. With a conference microphone, these meetings can be recorded accurately and

## Speeds new Massachusetts pike ... with help of TIMKEN® bearings

THERE were 1,500,000 yards of rock to move from this 4½ mile section of cuts on the new Boston to Lowell Turnpike. The whole job was done by this 2-yard Lorain 820-J Shovel and five of its brothers. To keep the shovels on the go with minimum time-out for maintenance and repairs, Timken® tapered roller bearings are used in the six turntable cone rollers, hydraulic coupling, horizontal swing drums, crowd and travel, and hoist drum of these 820-J's.

Timken bearings take the tough shock loads because they're case-hardened to give a tough, shock-resistant core and a hard, wear-resistant surface. Their tapered construction enables them to take both radial and thrust loads in any combination. Drums are held in rigid, positive alignment. Wear is minimized.

Because they keep drums and shafts concentric, Timken bearings make closures more effective. Lubricant stays in, rock dust and moisture stay out. Lubrication and maintenance time are held to a minimum.

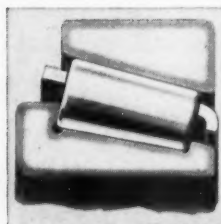
No other bearing gives you all the advantages you get with Timken tapered roller bearings. Make sure they're part of the equipment you build or buy. Look for the trademark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



How THE SHOVEL COMPANY mounts the hoist shaft of its 2-yard Lorain 820-J Shovel on Timken tapered roller bearings for minimum maintenance and long life.

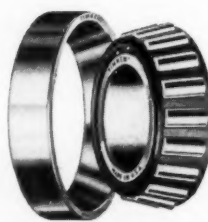


### HARD ON THE OUTSIDE, TOUGH ON THE INSIDE

Rollers and races of Timken bearings are case-carburized to give a hard, wear-resisting surface and a tough, shock-resisting core. Result: longer bearing life.

The Timken Company leads in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis Timken steels.

**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**



NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

### WILKINSON LINE LOCATOR

FOR  
**PIPE LINE CONTRACTORS**  
Eliminates grief and expense  
in ditching operations.

Write for full particulars

**WILKINSON PRODUCTS CO.**

Originators of  
light, powerful, quality Locators  
3987 Chevy Chase Drive, Pasadena 3, Calif.

CONTRACTORS AND ENGINEERS





A busy construction superintendent saves time by using a dictating machine. His traveling "secretary", a Gray Audograph, is secured to the seat by a safety strap.

Back at the office, a secretary transcribes her boss' verbal notes, efficiently fitting the job into her daily schedule.

Ray Day Photos



the records filed away. Important telephone conversations can also be recorded.

These days, it is sometimes very difficult to find a stenographer who is proficient at taking dictation. With the use of a dictating machine, a typist is able to take dictation. The machine records the boss' words—every word—and the typist transcribes them with the use of a speaker or earphones.

Dictating machines are easily adaptable to a superintendent's every-day business. Many of these men make liberal use of pointed, informal notes of criticism when dealing with their key foremen and subforemen. One dam builder calls these little notes "damograms". He usually writes them himself in long-hand. The foreman concerned finds them in his private job mailbox. Instead of the time-consuming long-hand method, suppose such messages were dictated to a Sound Scriber, Dictaphone, Edison Voicewriter, or Gray Audograph? This could be done as soon as the idea or suggestion comes to the superintendent's mind. The criticisms could be transcribed by the office stenographer or receptionist, thus saving valuable time.

Savings could also be effected by direct communication where typing or writing is completely eliminated. There is a group of salesmen that keeps in touch with its home office by means of weekly reports mailed in the form of recorded disks or belts. These records are placed on a playback machine in the home office, and the reports are received without any typing or writing. The same scheme could be applied to a construction setup. In many cases, a central stenographic pool could be organized to use that effort to optimum advantage.

What better way could there be for a highway maintenance engineer to make an inspection trip and record his orders and suggestions for

(Concluded on next page)

"The DOMOR Elevating Grader has made more money for me in less time than any machine I own" ... *J. Lee Milligan* CONTRACTOR



Ulrich Products

CORPORATION

ROANOKE, ILLINOIS

This statement by J. Lee Milligan, Amarillo, Texas contractor, is typical. Mr. Milligan has been using his DOMOR for terracing farm land, building underground storage tanks and general excavating. He likes the low operating cost and extreme mobility his machine offers for diversified work. On a recent street excavating job in Canyon, Texas, his outfit removed 2000 cubic yards of hard-packed loam and caliche in one day to bring the street to grade.

Keep the DOMOR Elevating Grader in mind for your next job. See the DOMOR in action on a new color/sound film at your CATERPILLAR-DOMOR Dealer.



The DOMOR Elevating Grader teams with a Caterpillar No. 12 Motor Grader to cut and load hard-packed loam and caliche in Canyon, Texas.



**KIESLER**  
Since 1892

2-LEVER ARM  
CLAM SHELL BUCKETS  
with  
POWER  
ON BOTH SHELLS

"A PAYLOAD EVERY TRIP"

The ONLY Bucket that DIGS-IN  
instead of Lifting-Out.

Write for literature

JOS. F. KIESLER COMPANY  
934 W. HURON ST. CHICAGO 22, ILL.

## Electronic Secretary

(Continued from preceding page)

the district maintenance engineer? He could drive out along a stretch of highway with his machine beside him, stopping to give notations to it

whenever the need arose.

"I'm 2 miles west of Colorado Springs on U. S. 24, Joe, and there's a bad hillside erosion coming down on the highway," he might say. He doesn't even have to stop his car to make the note.

Engineering reports might be much more readable if their authors dictated them to a machine. After a few weeks of verbal reporting, an informal tone begins to creep into the reports. Almost invariably, this makes for better understanding, clearer communication. That is the essence of a good engineering report.

Important, too, is the tendency of such an instrument to aid its user in becoming a better public speaker. There is something about this medium of communication that trains a man, however spontaneously he speaks and thinks, to do it more carefully. This leads to a better utilization of the English language and to a clearer expression of ideas.

Wherever dictating machines are used, there is a more business-like atmosphere. The availability of such equipment prevents important mate-

rial from being forgotten. It makes for twice as good an administrative job with half the time and effort.

The average setup consists of a recorder and playback combination and a playback machine for the office stenographer, plus a converter which changes six-volt car battery current to 110-volt ac power. Service maintenance four times a year consists of oiling several parts of the rolling gear with a lightweight jewelers' oil, and cleaning rubber bearing surfaces with carbon tetrachloride. The converter is easily removed or installed, and spares can be carried in the glove compartment. The equipment's tubes are standard and can be purchased at any radio or TV repair shop.

While such machines do not eliminate the final checking of technical correspondence by the author—Allis-Chalmers could come out Alice-Chalmers, and Lorain might be written Lorraine by a stenographer unfamiliar with the names—they do an exceedingly satisfactory job. Interviews take less time, facts are never lost in the shuffle and are always as received, and the finished product is as accurate as it would be if written by the man himself.

With engineers and other qualified construction people at a premium, the efficient use of professional working time is as important to industry as the mechanization of any of its other phases. As administrative matters grow in proportion to the over-all work day, more and more key people will be investigating the modern communications tools now at their disposal. THE END

**THE GOLDAK Featherweight MODEL 87  
PIPE LOCATOR**

**FINDS THOSE PIPES!**

- Gives EXACT location of buried pipes, mains, services, gates, tees, ells, stubs, etc.
- Easy, reliable one-man operation
- Compact, ruggedly built
- Featherweight — only 11 lbs. complete
- Guaranteed superior performance

WRITE FOR COMPLETE DETAILS

**THE GOLDAK CO. 15011 W. GLENOAKS, GLENDALE 1, CALIFORNIA**

# NOW the World's first construction hauler with 8-Speed Hydra-Matic Drive!

It's been THE dream for years. Now GMC's sensational new M470 makes it reality—a truck that conquers the truck-killing strains of construction hauling with 8-speed Truck Hydra-Matic.

It's a truck that shifts *itself* to whisk top loads up the toughest grades—with the least engine effort. Its axle and drive line can't be shock-loaded. It never needs clutch repairs or replacement.

It's a truck that *automatically* maintains peak efficiency on the road, off-the-highway—or back and forth a hundred times a day. And misers your fuel as it goes.

It's a truck that also offers Safety Power Steering\* to wipe out 75% of the steering effort. And—with truck-control so much easier—drivers stay more alert—safety records improve.

What's more, the M470 teams all this with a power plant that's—pound-for-pound—the mightiest in gas truck history. Famed GMC ruggedness is greater than ever.

And price? You'll be amazed at how little it costs to put this new Hydra-Matic sensation on your profit-making team. See your GMC dealer—and see for yourself! \*Optional at extra cost

**Get a modern truck!**

**GMC Truck & Coach Division of General Motors**

*Illustrated is GMC's 145 H.P. M470—22,000 GVW*



## Tunnels Are Subject Of Children's Book

Tunnels, from the 15½-mile Hadrian's Aqueduct built by the Romans to bring water to Athens, to the six-mile Carlton drainage tunnel in Cripple Creek, Colo., are the subject of the fifth volume in the Gateway series published by Random House, 457 Madison Ave., New York 22, N. Y. Aimed at the younger readers, the books retail for \$1.75.

"Famous Subways and Tunnels" is written by Edward and Muriel White. Mr. White graduated as a civil engineer from Harvard and has worked for Spencer, White & Prentiss, Inc., a foundation and construction firm that had a large part in building the Sixth Avenue subway in New York City, one of the most difficult sections of subway ever constructed. His wife, a Vassar graduate, worked for Life magazine.

The volume is designed to answer such questions as: Who built the first tunnel? What is the longest tunnel in the world? How were they built, and who were the men who built them? While written for the youngster, the book has a simple, straightforward style and is packed with interesting information so that the hour or two invested by an adult in reading it would not be wasted.

Other books in the Gateway series are "Famous Airports of the World", "Famous Bridges of the World", "Famous Harbors of the World", and "Famous Railroad Stations of the World".

CONTRACTORS AND ENGINEERS





### Lightweight Engines

■ Two new lightweight gasoline engine models have been announced by the Power Products Corp., Grafton, Wis. The 2-hp units weigh 13 pounds in the vertical-shaft model and 14½ pounds in the horizontal-shaft model. Improvements in the new engines include a concentric cylinder cooling fin arrangement said to increase operating efficiency.

Among the features applying to both models are ball bearings at both ends of the crankshaft with the crankshaft induction hardened at the rod bearing surface, full carburetion, positive fly-ball governor, and bronze or needle bearing connecting rods.

For further information write to the company, or use the Request Card at page 18. Circle No. 608.

### Brackets Make Scaffold

■ Scaffold brackets used to make a ladder scaffold are described in literature from the Beaver Art Metal Corp., Box 792, Ellwood City, Pa. Used in pairs, the brackets will hold two ladders vertically so that a wooden stage may be laid between the ladder rungs.

The Step-A-Time bracket fastens to any surface with 16-penny nails. Wing nuts on the clamp-rod hold the ladder securely in position. The ladder may be adjusted as close as 6 inches or as far as 20 inches from the building.

The brackets are of steel with angle braces welded to the frame. The hanger gussets are keyhole punched so that the frame may readily be attached to any accessible location. All threaded parts, including wing nuts, are of zinc-coated steel.

The brochure also describes a shelf bracket that will provide an additional tier upon which building materials and tools may be placed without taking up the walking space of the working stage. The locking end of the shelf bracket slides into the ladder support with the slotted portion dropping into place over the ladder rung. The shelf support provides space for lumber up to 12 inches in width.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 598.

### Columbia Appoints Miller

John L. Miller has been appointed special sales representative in the Williston Basin for the Columbia Powder Co., a subsidiary of Olin Industries, Inc., East Alton, Ill. With over seventeen years of experience in the explosive industry, Mr. Miller will handle sales of Olin explosives products in the seismograph operations of various oil companies in Montana, North and South Dakota, and Wyoming.

### Asphalt Plant Literature

■ New literature gives technical specifications on the 4,000-pound-batch-capacity asphalt plant made by Madsen Iron Works, Inc., P. O. Box 578, Norwalk, Calif. The Model 481 features a new method of withdrawing materials from its four-compartment aggregate bin.

The materials from each compartment are withdrawn through three openings, one in the center and one at either edge of the bin bottom. When the single gate that covers the three outlets is opened, the material in the bin is drawn from the bin sides as well as the center. This is said to eliminate "coring out" and segregation and to provide a more uniform withdrawal of material.

The literature also describes the Model 440 twin-shaft pugmill mixer

for use with the new plant.

It is available in 4,000 to 6,000-pound capacities. Also illustrated in the literature is the company's pressure-injection system for pump-

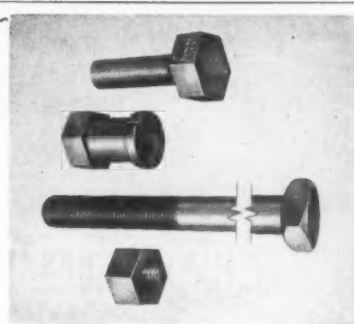
ing the asphalt into the pugmill.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 587.



### TRACK TENSION BOLT PARTS FOR D8's only:

SILVER BOOSTER now gives you a complete "package" of tension bolt parts. Keep one of these Quick-On emergency kits on hand for every D8 . . . and guard against those costly delays due to broken tension bolts. Quick-On Bolts can be installed right on the job! Saves you 6 to 8 hours on every breakdown. Order from your tractor dealer today or write direct. Immediate delivery.



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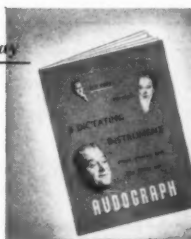
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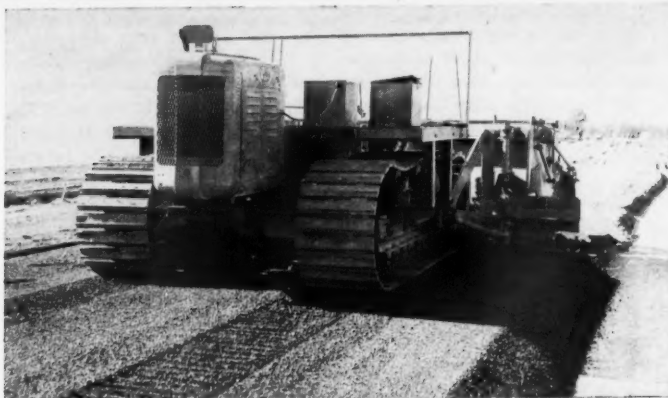
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Up to 40% has been saved in drilling and belling caisson pier holes with Calweld Earth Drills as compared with old digging methods. Calweld Model 150-A drills holes from 16 to 84 inches in diameter to depths of 200 feet, removing 21.5 cubic feet of earth per pass.

Every operation is completely mechanical which eliminates costly hand labor and danger to workmen. All controls are centered in a single unit to permit efficient operation with a two-man crew.

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CALWELD BUCKET TYPE EARTH DRILLS

Invest In  
**U.S. DEFENSE BONDS**  
Now Even Better

## Choosing Steel Forms To Match Job Requirements

■ Literature illustrating and describing Blaw-Knox steel forms for concrete construction is announced by the company. Using photographs taken on the job, the booklet shows how the proper type of form and traveler may be matched to any given job conditions. Each illustration is accompanied by text describing a special forming problem encountered and how it was met. The jobs described involve the construction of circular and arched conduits, railroad and vehicular tunnels, subways, box conduits, walls, dams, piers, caissons and shafts, and bridge centering. This is followed by a section on practical design suggestions for the economical use of steel forms.

The literature also describes a Blaw-Knox service, available to any contractor or engineer, involving the study of construction projects in the prebidding stage. On the basis of this study, the company recommends the most economical method and equipment for the forming work on the job.

The advantages of using steel forms as listed in the brochure include the better quality of work obtained from forms manufactured to close tolerances, reduction in handling costs by the use of special equipment, and protection against fire. It is also pointed out that steel-forms have greater salvage value.

For further information write to the Blaw-Knox Co., P. O. Box 1198, Pittsburgh 30, Pa., or use the Request Card at page 18. Circle No. 646.

## Ephemeris for Surveyors

■ The 1954 edition of the pocket-size Gurley Ephemeris is now available from W. & L. E. Gurley, Fulton and Station Sts., Troy, N. Y. It includes a new chart of Polaris which makes possible an observation of the

star within a minute and with minimum computation. The new edition again includes an almanac listing 28 selected stars for determining stellar observations.

This almanac is an abridgment of the American Nautical Almanac. It gives complete instructions for determining azimuths by methods similar of those used in observations of the sun and Polaris. The booklet also contains charts for the sun and Polaris, as well as definitions of astronomical terms and many sample problems. It also includes a number of useful tables.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 592.

## Catalog on Excavators

A condensed catalog presenting pictorially the company's line of excavating and material-handling machinery is offered by Osgood General, P. O. Box 515, Marion, Ohio. Specifications are given for machines ranging in size from ½ to 3 cubic yards, and with 10 to 63-ton lifting capacities.

The choice of mountings and front end attachments available is illustrated along with special equipment for various types of operations. Included are the one-man operated Mobilcranes.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 648.

## Marlow Names Manager

Reorganization of the service facilities into a separate department at Marlow Pumps, Ridgewood, N. J., has brought about the appointment of Harold Hinnes as manager of the new department, which will act directly with dealers and customers in supplying parts, repairs, and service information.



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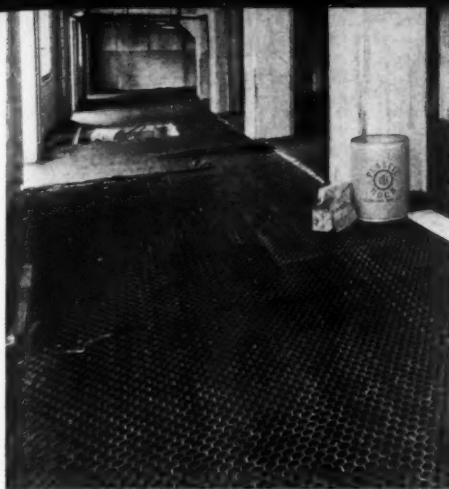
A crystal ball might be one way to locate buried pipe or cable at an excavation site. But... a better, safer and more efficient way is to use the new, improved Detectron "505" that accurately pinpoints the exact length, depth and location. Stop guessing—and be sure!

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CONTRACTORS AND ENGINEERS





### Steel Grid and Filler Make Reinforced Floor

■ A heavy-duty flooring that combines a heavy steel mesh and a special filler is marketed in a package unit by the United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio. Once installed, the resilient filler used in the grid compacts to meet the level of the steel ribs so that wheels ride on steel without the noise and slipperiness of a solid steel surface.

The Steel-Rock flooring is said to withstand impact as well as heavy loads and to remain maintenance-free for years. The filler may also be applied over new or old surfaces of wood or concrete, inside or outside, at depths varying from  $\frac{3}{8}$  to 1 inch.

For further information write to the company, or use the Request Card at page 18. Circle No. 528.

### New Pipe Specification

■ Service-weight cast-iron soil-pipe is a new pipe specification announced by the Cast Iron Soil Pipe Institute, 1627 K Street, N. W., Washington 6, D. C. The specification is designed to eliminate substandard pipe and fittings and to promote interchangeability of products made by different manufacturers.

A cross section of the pipe through the joint shows packed oakum held under pressure by a lead ring locked into the pipe bell to form a moisture-proof seal. This is intended to keep out tree roots. Lead-oakum pipe joints are also said to be flexible under bending caused by earth movements and have been known to stand a concentrated load of 1,000 pounds, according to the Institute. The strength of the cast-iron soil-pipe and its corrosion-resisting qualities make it a permanent material.

For further information write to the institute, or use the Request Card that is bound in at page 18. Circle No. 576.

### Aeroquip Appointment

The appointment of Matthew J. Betley as vice president and general manager has been announced by the Aeroquip Corp., Jackson, Mich., manufacturer of flexible hose lines, and detachable and re-usable fittings. Mr. Betley will coordinate sales, engineering, and manufacturing functions, including management of all subsidiaries.

### Thor Advances Fischer

Ernest D. Fischer, formerly service engineer in the Birmingham, Ala., territory, has been appointed manager of the Atlanta, Ga., factory branch office of the Thor Power Tool

Co., Aurora, Ill.

The Atlanta branch was opened last October, following construction of new facilities. It handles Thor sales and service for Georgia, Florida, South Carolina, and part of North Carolina.

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**NEW**

**COOK CRANE CARRIER**

**ONE-MAN-TYPE FOR 25-TON CLASS**

*Cut-away view shows power train in the new Cook One-man-type Crane Carrier*

**Independent Power**

**PERMITS INDEPENDENT TRAVEL AND SWING**

### PLUS:

**POWER STEERING • SHORT TURNING RADIUS • AIR BRAKES TORQUE CONVERTER WITH 6 SPEEDS FORWARD AND 2 REVERSE STABILITY • GREATER FLOTATION, TRACTION AND GRADABILITY ROAD SPEEDS AND DRAWBAR PULL FOR ALL OPERATING CONDITIONS**

### Move The Carrier — Operate The Crane Both At The Same Time With One Man!

That's the big feature of the new, one-man-type, Cook Crane Carrier . . . a combination self-propelled and truck type! . . . designed specifically for all make cranes in the 25 ton class; and trench hoes and shovels in the  $\frac{3}{4}$  - 1 yard class.

In addition, this great new carrier features hydraulic power steering and air brakes, yet without air or oil lines between carrier and crane. All carrier controls are by mechanical linkage. Investigate this new unit now . . . available as either new and original equipment or for mounting used machines.

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Please send complete, detailed information regarding your new crane carrier to:

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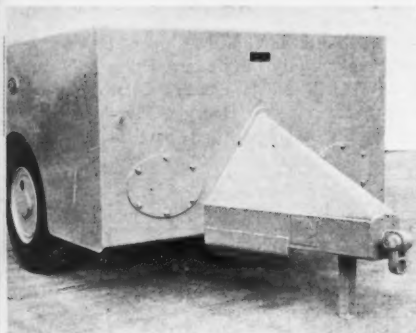
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**COOK BROS.**  
EQUIPMENT COMPANY

3334 San Fernando Road, Cleveland 6-3151  
Los Angeles 45, California

**Crane Carrier Division**



The new Model 20T compactor recently announced by the Tampo Mfg. Co., San Antonio, Texas.

### Twenty-Ton Compactor

■ A new 20-ton six-wheel pneumatic-tire roller is announced by the Tampo Mfg. Co., 1146 W. Laurel St., San Antonio 6, Texas. Wheel load of the Tampo Model 20T is variable from 1,250 to 6,900 pounds by ballast loading. Ground pressures up to 550

pounds per linear inch of contact width or 72 pounds per square inch of tire contact can be uniformly maintained. Gross weight of the loaded roller is 40,000 pounds.

A low center of gravity and an 8-foot rolling width make for stability. The six wheels are carried on two separate axles mounted into heavy steel oscillating trunnions. Close wheel spacing, 4 inches, gives maximum coverage in compaction. The standard tire used is an 11.00 x 20 Goodyear All Weather 12-ply earth-mover tire.

For further information write to the company, or use the Request Card at page 18. Circle No. 605.



### Measuring Tape

■ A mine tape on an improved 5-arm reel is announced by the Lufkin Rule Co., Saginaw, Mich. The graduations and figures on the tape are stamped into nickel-silver sleeves that are soldered to the line. The reel is made of heavy-gage nickel-plated steel.

The five metal arms of the reel hold the line in place to prevent overlapping or tangling. There is a tape roller in each arm for smoother action. The reel is fitted with a long winding handle for better leverage and easier winding, and a large drum for rapid reeling.

For further information write to the company, or use the Request Card at page 18. Circle No. 596.

### New Diesel Engine

■ A new 4-cylinder diesel engine is announced by R. H. Sheppard Co., Inc., 47 Middle St., Hanover, Pa. The Model 16 incorporates the design features found in the company's previous models. These include the Sheppard simplified fuel injection system, a fly-ball-type governor, and oil-spray-cooled pistons.

The new diesel has a gross rating of 78 horsepower at 2,000 rpm. It is offered as a power unit or 30-kw generating set. The new unit is available with either radiator, heat exchanger, or tank cooling system. The engine is rated at 56.2 horsepower in intermittent use at 1,800 rpm and 51.4 horsepower for continuous applications at 1,800 rpm.

For further information write to the company, or use the Request Card at page 18. Circle No. 579.

### Boiler Safety Device

■ A condensed catalog of safety devices for steam and hot water boilers and hot water tanks has been issued by McDonnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago 18, Ill. This booklet gives information on the company's standard boiler feeders, low water cut-offs, pump controls, and pressure and temperature relief valves.

A service recommendation chart is intended to help in the selection of the proper control within each of the four major job classifications covered. Also given is comprehensive information on the use of safety water feeders on hot water boilers. Other new material includes data on the company's 230 Series ASME pressure relief valves.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 555.

### Fiberglas Insulation Data

■ A booklet describing and illustrating Fiberglas insulations for low-temperature structures and equipment is available from the Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio. The literature covers design considerations, sets standards for vapor barriers, and outlines application methods. Included are dry-wall and hot-dip constructions and self-supporting partitions.

Products for low-temperature insulations described are: performed insulation, asphalt-enclosed board, asphalt-enclosed floor board, roof insulation, and dual-temperature pipe insulation.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 561.

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Boston to 'Frisco  
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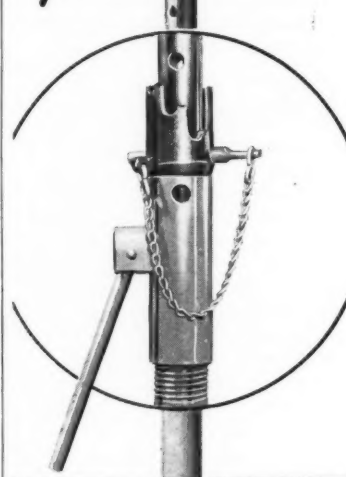
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2. Screw shore up final 1½" by turning built-in handle. Never more than six turns—usually less.
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Los Angeles, Calif.

CONTRACTORS AND ENGINEERS





The 50,000-pound cement tester offered by the Baldwin-Lima-Hamilton Corp.

### Cement-Testing Machine

■ A 50,000-pound cement tester for plastic mortar cubes, cylinders, and beams is announced by the Baldwin-Lima-Hamilton Corp., Lima, Ohio. The new Baldwin hydraulic compression-testing machine was designed to meet all requirements of ASTM Test Method C 109-52. This is provided primarily by means of an accurate null-balance Tate-Emery indicator operated by an Emery hydraulic cell in the loading unit and a servomotor. The indicator dial is 24 inches in diameter and registers in three ranges.

The Emery capsule and loading frame have a load capacity of 100,000 pounds which can be used by connecting a 16-inch load dial, available as extra equipment, into the manifold of the indicator. Accuracy is within 0.5 per cent of the dial reading or 0.1 per cent of range capacity, whichever is greater. Standard test accessories are included with the machine.

For further information write to the company, or use the Request Card at page 18. Circle No. 557.

### Portable Air Compressors

■ A new bulletin describes the line of portable air compressors made by the Davey Compressor Co., Kent, Ohio.

The literature includes photos and brief specifications of 60 to 600-cfm models. Gasoline, diesel, and electric-powered compressors in skid, two-wheel, and four-wheel units are described.

To obtain this literature write to the company or use the Request Card at page 18. Circle No. 641.

### Equipment Identification

■ Transfer signs for lettering trucks and other equipment are available from Ward's Trucksign Transfers, 8504 Lyndon Ave., Detroit 38, Mich. The signs are multi-colored and can be designed in any shape or combination of colors. They are made in sizes up to 20 x 30 inches, and are recommended for application on smooth surfaces such as door and truck panels.

The company also offers a die-cut paper mask stencil with an adhesive coating for spraying signs over ribbing, corrugation, and door hinges. Also available are brushing stencils for use on miscellaneous expendable equipment.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 630.



The new motor-driven Model E Hi-Way spreader, featuring one-man operation, is suitable for seal-coating work, dust control, road stabilization, and ice control. The unit spreads sand, aggregate, calcium chloride, cinders, rock salt, and pea gravel and can be mounted or dismounted in one or two hours, according to the manufacturer. For further information write to the Highway Equipment Co., Inc., 616 D Avenue Northwest, Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 519.



**CALIFORNIA HOSPITAL**—Ability to work inside buildings and in other restricted areas makes the Barco Rammer invaluable. The job pictured above is on the Peninsula Hospital near Millbrae, California. Contractors: Williams & Burrows and Carl N. Swenson Company. (Photo: CONSTRUCTION ILLUSTRATED.)



**GEORGIA HOUSING PROJECT**—With Barco Rammers, you can finish fill to high degree compaction immediately for quicker completions and important savings in cost. This is why the J. A. Jones Construction Co. used seven Barco Rammers on the Lakewood Housing Project at Atlanta, Georgia. (Photo: DIXIE CONTRACTOR.)



**NEW YORK DAM**—Exacting specifications for soil compaction on the Downsville Dam project of the New York City Board of Water Supply were easily met by Barco Rammers used by Carlo Bianchi & Company. (Photo: CONSTRUCTIONER.)

FOR SOIL COMPACTION IN RESTRICTED AREAS!

**BARCO**  
*is the*  
**Answer!**

**SOIL COMPACTION** is the key to better construction on important building projects throughout the country—and on these jobs, BARCO IS THE ANSWER! Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE.

The Barco Rammer is a completely self-contained unit; no auxiliary or extra equipment is required. On area tamping, where specifications call for 95% to 97.5% (modified Proctor) compaction, one man can average 20 to 30 cubic yards of fill per hour, day after day.

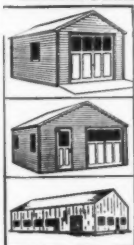
If you are not already using the Barco Rammer for soil compaction work, find out about it now! *Worldwide Sales and Service.* BARCO MANUFACTURING COMPANY, 518B Hough St., Barrington, Illinois. (Near Chicago).

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For Soil Compaction Close to Walls, Culverts and Abutments—in Trenches, Ditches

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**Easily Erected**  
**STEEL**  
**or ALUMINUM**  
**BUILDINGS**

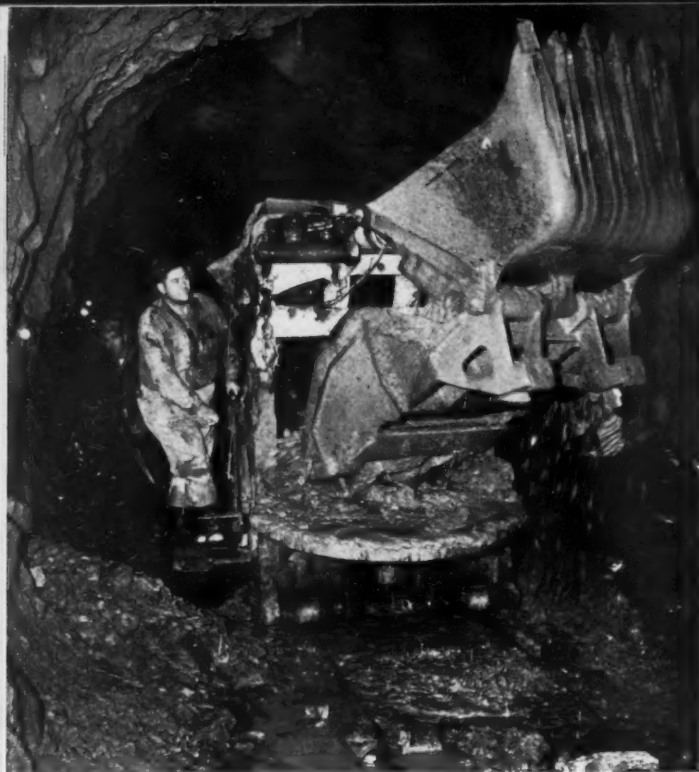
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A Conway mucker operating in the construction of the relief tunnel. Material is thrown from the bucket onto a conveyor belt which loads a muck car.

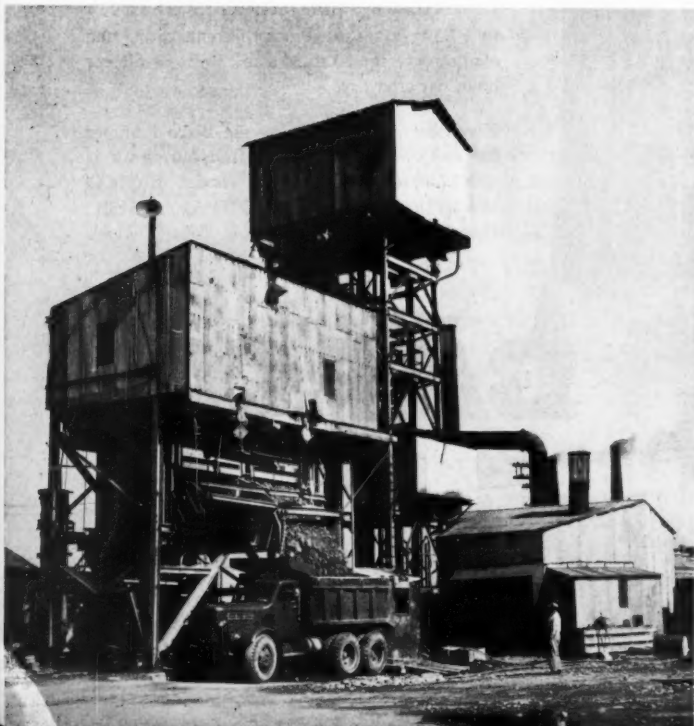


Material is dumped into a muck car from the conveyor. This operation is taking place at the forward end of the 26-inch Naylor ventilator duct pipe.

## *Around-the-clock crews drive up to 50 feet per day through stable rock areas*

By ALBERT C. SMITH, Field Editor

A truck is loaded with muck from the hopper in the tippie. The small building on top houses the mechanism which operates the material elevator in the 300-foot shaft.



NEARLY 300 FEET beneath Boston Harbor, tunnel crews are drilling, blasting, and mucking around the clock as they drive a 13½-foot-diameter heading for the North Metropolitan Relief Tunnel through a 3¼-mile stretch of wet and variable rock. The project is part of a master plan for the prevention of water pollution in the Boston area and is being carried out by the Metropolitan District Commission of the Commonwealth of Massachusetts.

Scheduled for completion in 1955, the sewer, which will have an inside diameter of 10 feet, will extend on a straight line from Chelsea, on the mainland, to Deer Island, near the middle of the harbor. Two shafts have been sunk on the island. One will be an uptake for the tunnel, and the other will serve the same purpose for the yet-to-be-started Boston Main Drainage Tunnel.

The \$6,335,000 contract for the job is held by the S. A. Healy Co., Inc., White Plains, N. Y. The task of sinking the two shafts was handled by Marinucci Bros. & Co., Inc., Dorchester, Mass.

### Water Pollution

For years, the waters in and around Boston have been polluted by the discharge of raw sewage from the many municipalities in the area. Now a broad program, slated for completion in 1958, has been adopted which calls for the construction of two major sewage-treatment plants—one is already complete and in operation—and several relief sewers and overflow conduits. Rehabilitation of tide gates and pumping stations is also on the agenda.

The 300-foot-deep Shaft 2 in Chelsea and about 700 feet of tunnel were completed under a previous contract by the Dravo Corp. of Pittsburgh, Pa. The S. A. Healy Co. set up its yard at Shaft 2 in November, 1952, and began to push the

heading toward Deer Island.

A few months before, Marinucci moved in on the job site at Deer Island and started work on Shaft 1. Both 300-foot shafts on Deer Island were constructed by sinking reinforced-concrete caissons through about 120 feet of overburden and drilling and lining the lower 180-foot rock section.

Marinucci planned to complete most of the caisson work on both shafts before starting in on the rock. The caisson for Shaft 1 was sunk in about 3 months. Shaft C, for the Main Drainage Tunnel, was completed in March, 1953.

### The Shafts

Both island shafts have 14-foot preliminary inside diameters and are about 100 feet apart. In each case, a Lorain 80 crane excavated the top 5 feet of overburden and placed timber bearing blocks in the hole to support and align the welded steel shoe of the caisson.

The shoe's cutting edge consisted of several welded steel plates. The outside ring was made of an 18-inch-wide ½-inch-thick plate and a 9-inch-wide one-inch-thick plate. Another 18-inch-wide ½-inch-thick plate was set inside at a 45-degree angle to form the edge.

When the shoe was in place, an inside wood form made in four sections and an outside steel form in three sections were positioned above the shoe. Richmond ties were used to maintain the 3½-foot wall thickness during the pour. Transit-mix trucks chuted the 3,500-pound batch of concrete into a bottom-dump bucket handled by the Lorain. After it was poured, the 11-foot-high lift was allowed to set between 8 and 12 hours. Forms were stripped by simply removing a few bolts and dismantling in sections.

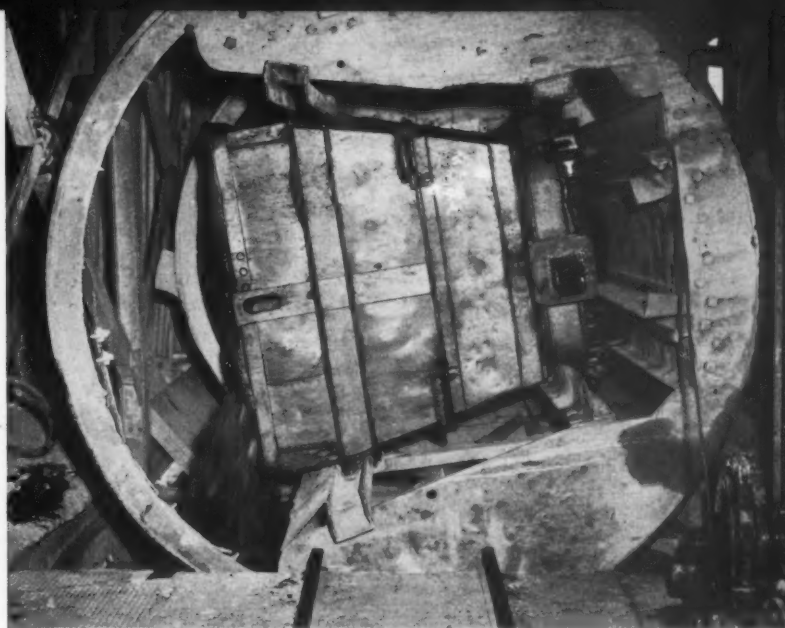
Circumferential keyways, measuring 4 inches deep, 12 inches wide, and 5½ feet on center, were left in

CONTRACTORS AND ENGINEERS





A Goodman locomotive tows a string of loaded muck cars through this steel-supported section of tunnel to the bottom of the shaft.



The frame inside the tippie at the top of the shaft turns the muck car over, dumping its load into the hopper.

## Advances Beneath Boston Harbor

the face of the inside wall to provide for the final concrete lining. Then the first lift was sunk. With a clamshell bucket, the crane excavated the material inside and under the caisson, allowing it to sink. At the proper depth, excavation was discontinued, a new lift was added to the top, and the operation was repeated.

### Jetting

As the caisson descended, it became harder and harder to sink it by the weight of one lift. One-inch pipes were therefore inserted around the outside, and compressed air and water was jetted in to free the caisson from the walls of the shaft. In difficult areas, up to nine jet pipes, plus the weight of extra lifts of concrete, had to be used.

Another problem was keeping the caisson plumb during the sinking. Both excavation and jetting operations had to be spotted accurately to prevent any tilting of the huge concrete cylinder. With this consideration, the contractor averaged only about one lift per week.

When both caissons had been sunk to rock, Marinucci began drilling and blasting in Shaft No. 1. Because of the depth, the crane was replaced by a steel headframe with a Lambert hoist powered by a 125-hp electric motor.

### Drilling

A fast job of drilling was done with a Le Roi-Cleveland Model H23 shaft sinker suspended by a cable from the headframe. The 14-foot-long shaft jumbo, mounting two

drills, each with a 7-foot travel, drilled about 35 holes per round into the argillite rock. Total drilling time, including setting up the shaft sinker and taking it out, was less than two hours.

Holes were drilled 7 feet deep in a concentric circle pattern, with the center holes angled toward the core. About 300 sticks of Hercules 40 per cent dynamite, capped with delay fuses and fired electrically, were used per round. An average of 6 feet of muck was pulled out after each shot. Mucking was done with an extra-heavy Blaw-Knox clamshell bucket. An Ingersoll-Rand air-powered tugger mounted on the side of the bucket was used to close it up. The loaded clamshell was then hoisted to the top and emptied into a truck. All muck from the two

shafts was used to fill in an offshore area adjacent to the site of the contemplated sewage treatment plant.

Compressed air is supplied to the shafts by two 500-cfm portable compressors, a Worthington and a Chicago Pneumatic. Because of Deer Island's remote location, sufficient electric power was not available from the existing lines. Consequently, Marinucci set up its own 180-kw generating plant powered by a General Motors Model 6046E diesel engine. A pair of Caterpillar D13000 sets are used as standbys.

Marinucci has just recently begun driving a tunnel heading from Shaft 1 back toward Chelsea.

### Driving the Tunnel

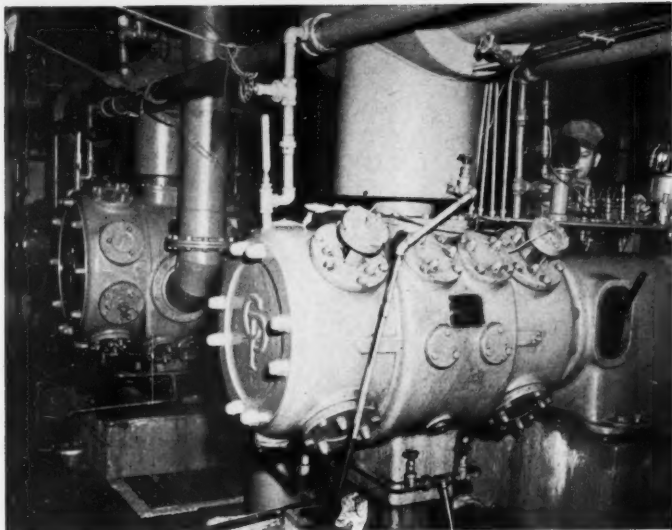
At the same time as the two shafts  
(Continued on next page)



A Plymouth locomotive pushes a supply car onto the elevator at the top of the shaft. There is also an elevator for the workmen.



Locomotives enter and leave the battery-charging building. Batteries have to be recharged at the end of every shift.



Compressed air for the tunnel comes from these two Chicago Pneumatic 1,500-cfm compressors. They are powered by 300-hp electric motors.

## Rock Tunnel Advances Beneath Boston Harbor

(Continued from preceding page)

were being constructed on Deer Island, Healy was pushing the tunnel heading from Chelsea. His first tunnel-driving crew was sent down in November, 1952, and it will probably be about that time in 1954 before the 110,000 cubic yards of rock are removed from the 3¼-mile bore.

Healy's speed varies considerably because of loose rock and wet conditions. Where the rock can be handled without roof supports, driv-

ing rates of 50 feet a day can be recorded. But in the unstable areas, production is greatly reduced, resulting in an over-all average of 24 feet per day. Steel arch roof beams, supplied by The Commercial Shearing & Stamping Co., are supported on heavy timbers in all areas of loose rock.

Healy has three 20-man tunnel gangs working eight-hour shifts every day, in addition to yard gangs, repair crews, shaft labor, electricians. Drilling is done with six Gardner-Denver drills mounted on a two-level jumbo. Timken carbide bits are used to drill the 38 holes for each shot. Five and 10-foot steel is used to drill the holes in a concentric circle pattern with a V-cut core. About 280 pounds of Hercules 40 per cent dynamite is consumed per round. The 10-foot holes pull an average of 8½ feet per shot, providing a factor of 6 pounds per cubic yard.

Mucking is done with an electric-powered Conway mucker. Strings of muck cars are hauled to and from the base of the shaft by Goodman battery-powered locomotives. A single-track system is used with sidings and car passers set up where needed.

At the shaft, muck cars are carried up one at a time by a Houghton hoist located at the top of the head-frame. When the hoist carriage reaches the second floor of the head-frame, the muck car is wheeled into the adjacent tippie where it is turned over inside a special rotating frame and allowed to empty into a hopper. One Sterling dump truck keeps busy carrying loads of muck from the hopper to a dump in Chelsea.

A separate elevator with a capacity of about six men is also operated in the shaft.

### Contractors Yard

At ground level, Healy's yard consists of a large Butler building for housing offices, air and ventilating equipment, repair shops, and materials. Another building is used for recharging batteries, an operation which is required after each shift. A large open storage yard is covered by an extensive network of tracks and serviced by a Plymouth locomotive.

Ventilating air for the tunnel is supplied by two Ingersoll-Rand 10,000-cfm fans powered by a 75-hp electric motor. A 26-inch Naylor pipe suspended from the roof carries fresh air to the tunnel heading and also exhausts the fumes after each shot.

Compressed air is supplied by two Chicago-Pneumatic 1,500-cfm stationary compressors powered by 300-hp electric motors. A Naylor 8-

## 3 reasons

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There's a reason for everything—and at least three good reasons to select Connors steel reinforcing bars on your next construction project. These and other advantages are among the reasons more people are turning to Connors for reinforcing steel—



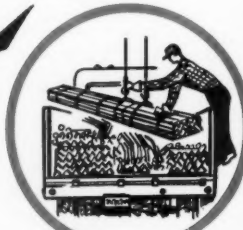
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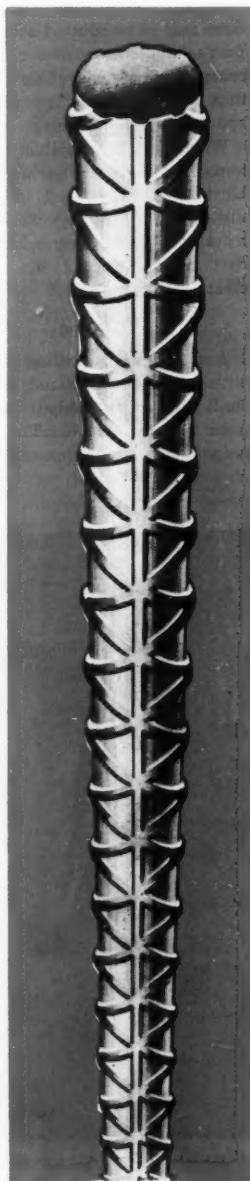
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CONTRACTORS AND ENGINEERS





Kenneth Clark, left, project manager on the Boston tunnel project, and Buddy Coe, superintendent, discuss a problem.

inch pipe carries compressed air to the heading. Water under regular city pressure is pumped through a 3-inch pipe.

Getting water out of the tunnel is another problem. Labour electric-powered pumps ranging in size from 100 to 1,000 gpm are spaced all along the tunnel and pump through one 6-inch and two 8-inch discharge lines back to the base of the shaft. Here, seven electric-powered shaft pumps, ranging in size from 700 to 1,500 gpm, raise the water to the surface and then out to the river. A total capacity of 6,500 gpm is available with two 8-inch and two 6-inch discharge lines. On the average, 850 gpm are continually being pumped out of the tunnel.

#### Personnel

Guido Verrochi is in charge of Marinucci Bros., and M. Murray is superintendent. Kenneth Clark is project manager for the Healy Co., and Bob Bills is superintendent.

The over-all sewerage program is being executed by the Metropolitan District Commission, Charles W. Greenough, commissioner. Design and supervision is under the direction of the commission's construction division, Frederick W. Gow, chief engineer, and Martin F. Cosgrove, assistant chief engineer. Tunnel construction is under the direction of John J. Vertic, associate civil engineer. W. O'Malley is inspector.

THE END

#### Bergen Wire Rope News

As part of its new expansion program, the Bergen Wire Rope Co., Lodi, N. J., has named Robert S. C. Ernst director of the sales and merchandising departments.

**WYCO** 2 H.P. UNIVERSAL ELECTRIC MOTOR **VIBRATOR**

**Place Concrete faster! Light - Powerful**

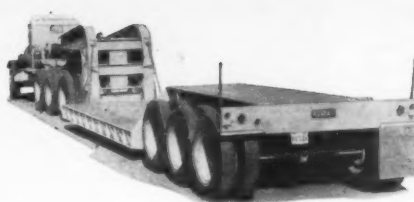
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#### Cutting Tooth for Dozers

■ A reversible tooth for bulldozers, angledozers, scrapers, and rippers is illustrated in literature available from Madera y Cia, Box L441, Larkspur, Calif. The Jaxo Tooth saves the corners of end bits, reducing replacement costs, and is said to keep a good cutting edge. Cast from a high-carbon alloy-steel and heat treated, the cutting edge has a hardness of 400 Brinell and a tensile strength of 220,000 pounds.

The tooth comes with an adapter pad that welds to the end bit. A 3/8-inch round pin, driven home by a sledge or maul, locks the tooth to the adapter.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 629.



This Rogers triple-axle trailer is available with detachable gooseneck and gooseneck dolly.

#### New Low-Bed Trailer Has Three Rear Axles

■ A triple-axle low-bed trailer is the newest development of the Rogers Bros. Corp., 108 Orchard St., Albion, Pa. This trailer is available in several capacities with conventional gooseneck or with the company's Power-Lift detachable gooseneck which permits quick detaching, loading, and reattaching.

Three rear axles have twelve tires and are so designed as to provide free oscillation to distribute the load. A gooseneck dolly at the front is mounted on an axle with four tires. Used with a dual-axle trailer, the weight of the tractor, trailer, and load is distributed over seven axles and 26 tires.

For further information write to the company, or use the Request Card at page 18. Circle No. 523.

## WHAT FULL CONTROL MEANS

### to the operator of an Allis-Chalmers TR-200 Motor Wagon



**Fast, Efficient Loading** — hydraulic steering control gets the TR-200 under the shovel fast without tiring wheel fight. Large top area permits fast loading with less spillage . . . double steel floor is reinforced with heavy oak plank to absorb loading shocks. Steering jacks and tires are fully protected from falling rock. The TR-200 carries 15 cu. yd. heaped or 18-ton loads.



**Quick, Clean Dumping** — operator controls two hydraulic jacks to dump and return bowl. Because this unit's wheelbase remains stationary, all four brakes can be set for maximum safety in bank-edge dumping. Rear end dumps far enough over embankment to eliminate rehandling material. Tapered bowl design and 70-degree tilt give quick, complete load ejection. Body may be heated to prevent load freezing.

**Safe, High-Production Hauling** — no worry when highballing a full load because four-wheel air brakes stop the TR-200 quickly even if the engine should stall. Steering pistons are equipped with stops to eliminate jackknifing. High horsepower-to-yardage ratio and large, rock-lug tires speed your operations . . . even on steep grades and in heavy going. The TR-200 travels at speeds up to 21.6 mph., delivers more loads, reduces idle shovel time.



**Plus Added Versatility** — The same 176-hp. diesel tractor unit and hydraulic controls may be used to operate an interchangeable self-loading scraper body for large scale stripping and hauling jobs.



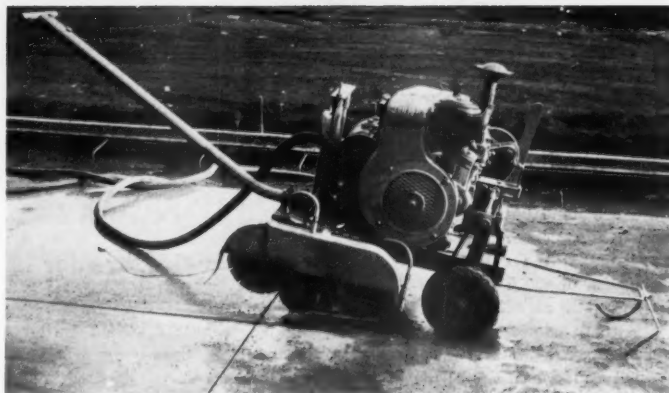
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**ALLIS-CHALMERS**  
TRACTOR DIVISION • MILWAUKEE 1, WIS.

## Mobile Concrete Saws

■ A tandem-blade model is featured in the Cutcrete line of mobile concrete saws that includes single and dual-blade machines. While the 8¼-hp Model J-T is the most universally used, the 13.3-hp Model S-T-T is employed for longer cuts. In this model, two blades, one running directly behind the other, increase the speed of the saw to save man-hours and reduce the load on the cutting blade. This unit can also be used with one 20-inch blade for sawing up to a depth of 8 inches.

The Model S-T-S, a single-blade 25-hp saw, is used for deep cutting. It will accommodate a 24-inch blade sawing to a depth of 10 inches. In a 30-hp dual-blade version, this unit is used for sawing grooves for trenches up to 5 feet wide.



The Cutcrete tandem-blade Model S-T-T concrete saw is recommended for longer cuts.

Two types and six sizes of blades are available for the machines. Type A is for sawing asphaltic con-

crete, macadam, brick, low-density concrete, and pavement containing much free sand. Type S is made

for sawing dense, well troweled and well cured cement concrete in which the aggregate is thoroughly locked. Blade sizes range from 10 to 24 inches.

An important feature of the Cutcrete Trail Blade design is that the machine is not steered with the blade. In addition, a coolant head coats the entire cutting area with liquid, giving a longer life to the blade. On dual models a step-cutting feature also tends to increase sawing speed and blade life.

For further information write to the Cutcrete Corp., Pasadena 8, Calif., or use the Request Card at page 18. Circle No. 569.

The careful selection and use of good lubricants at regular intervals will help keep your equipment operating more efficiently.



**"You get FAST ACTION —  
to the job...on the job"  
... with Cleaver-Brooks  
oil and bitumen heating equipment!**

**These self-contained mobile units can be ready to pump, heat and circulate bituminous materials in 20 minutes or less after arrival**

If your job can be reached on wheels, any one of these famous Cleaver-Brooks mobile heating units can save you plenty of time and money. Each can be transported as easily as you drive your car... put into operation with minor connections — by only one man! Their proven high efficiency, man hours saved, plus elimination of field problems can be important factors in your profit picture. That's why you'll want to know more about famous Cleaver-Brooks Tank-Car Heaters... Pumping Boosters... and "Deuce" combination tank-car heater and pumping booster. It's the mobile bituminous team that does more work... with faster heat, higher temperatures and with less fuel. Write for details. Cleaver-Brooks Company, Dept. A, 396 E. Keefe Ave., Milwaukee 12, Wisconsin.



**TANK CAR HEATER** — Shoots steam through tank-car coils at 125 lbs. pressure in 20 minutes or less from a cold start. Can be kept going at full tilt all day. Oil firing plus extra high-heat transfer design, assure extra fuel savings. Turbine-type condensate return means less water required. Available in two-car (28 BHP) and three-car (42 BHP) sizes, trailer and skid-mounted models. Ask for Bulletin RM-110.



**PUMPING BOOSTER** — Heats by direct firing 4 times as fast as steam, recirculates, then delivers bituminous materials directly to distributor. Heats only the amount of material required — not necessary to heat entire car. No steam or water required for operation. Has self-contained fuel and gasoline tanks. Available in two sizes, trailer and skid mounted: No. 1A Booster heats approx. 300 GPM temp. rise 25°-35°F; No. 2 Booster heats approx. 350 GPM temp. rise 45°-55°F. Ask for Bulletin RM-107.



**"DEUCE", COMBINATION TANK CAR HEATER AND PUMPING BOOSTER** — It's a portable steam boiler and direct-fired heater mounted on a single frame. Look at this three-job versatility! "Deuce" steam preheats one car to pumpable consistency while circulating and heating a second car to application temperatures. Same unit also pumps and loads distributor or transfer truck. Ask for Bulletin AD-104.

# Cleaver-Brooks



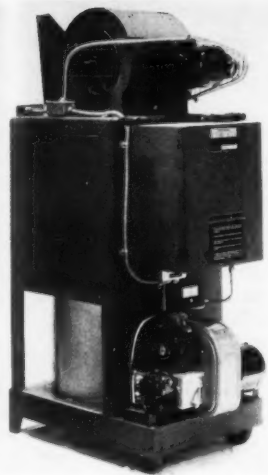
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SOUTH DAKOTA—Sioux Road Equipment Co., 500 E. Sixth St., Sioux Falls; Box 941, Rapid City.  
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WEST VIRGINIA—West Virginia Tractor & Eq. Co., P. O. Box 473, Charleston; P. O. Box 587, Clarkburg.  
WISCONSIN—The Stone Manufacturing Co., 321 N. 25th St., Milwaukee 3; Badger Equipment Sales, Inc., Route 2, Thiensville.  
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ALASKA—Glenn Carrington & Co., c/o Westward Hotel, Anchorage.  
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CONTRACTORS AND ENGINEERS





The Mortemp Model L heater discharges at floor level.

### Portable Heating Units

A line of portable heaters that deliver heat at floor level is made by the Mortemp Heat Machine Co., 2310 Rainier Ave., Seattle 44, Wash. The heaters use stove oil and plug into any 110-volt circuit. The units are recommended by the manufacturer for such construction uses as drying concrete, heating maintenance shops for heavy equipment, and preheating engines in cold weather.

There are two models. Capacity of the unvented Model L is 189,000 Btu. The Model H delivers 189,000 Btu unvented and 151,000 Btu vented. Operation on all units is by manual or thermostatic control. The downward-discharge blower is rated at 1,200 cfm.

For further information write to the company, or use the Request Card at page 18. Circle No. 515.

### Roller-Conveyor Line

A new line of heavy-duty roller conveyors designed for permanent installation is announced by the Rapids-Standard Co., Inc., 342 Rapistan Bldg., Grand Rapids, 2, Mich. The Series 1.9 roller conveyors are offered in a range of 154 new straight-section models and 38 curves for handling many kinds of materials. The line is manufactured in 11 regular widths from 12 to 51 inches with a choice of 7 roller spacings from 2 1/4 to 12 inches on centers.

Frames are of the all-welded design with side channels of 10-gage steel. These are securely braced with tubular and angle-steel cross members to prevent racking and twisting.

For further information write to the company, or use the Request Card at page 18. Circle No. 537.

### National Welding News

A 12-year veteran of the welding industry, Henry L. Pohndorf, has been named sales manager for the National Welding Equipment Co., 218 Fremont St., San Francisco 5, Calif. He has been the firm's chief engineer since he joined its staff seven years ago.

A graduate engineer of the Massachusetts Institute of Technology, he will retain his post as chief engineer in addition to his new duties.

### Caterpillar Safety Film

A new Caterpillar Tractor Co. film entitled "The Gamblers" points up how careless operators of heavy construction machinery often play a game with just as good or better odds than the infamous Russian roulette, but with the same dire results if they lose. The film recently had its premier showing before the construction section of the National Safety Council at the National Safety Congress that was held recently in Chicago.

The noncommercial movie takes a new approach to the promotion of safe operation of construction machinery. Spurning the usual "how to do it safely" approach to proper operation of machinery, it documents many typical every-day scenes on any construction job where

an operator may get careless. It shows how accidents happen and the fatal results that often come of this carelessness which could have been avoided.

The 20-minute film, which was produced by the Calvin Co., Kansas City, Mo., can be seen by contacting any Caterpillar dealer, domestic or export.

## PROVED LEADERSHIP in IGNITION

Fairbanks-Morse SUPER SPARK Magneto and Battery Ignition Units have proved superiority and leadership over many years of service.

FIRST to build a simple compact battery ignition unit with coil inside the housing. FIRST to build magnetos and battery ignition units with standard flange to mount on tractors.

Specify Fairbanks-Morse and you specify the "best".



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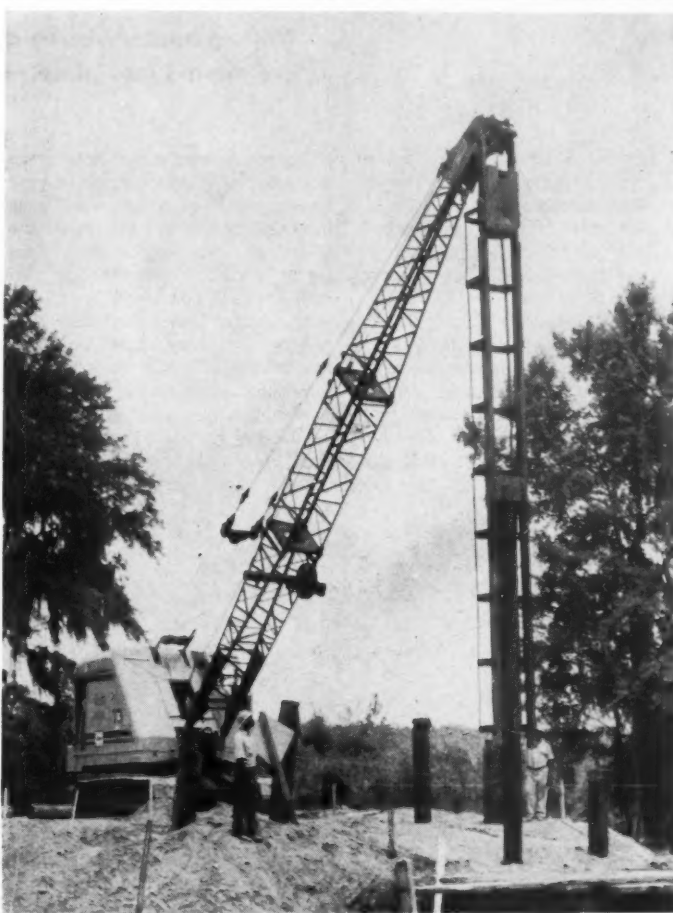
Beloit, Wisconsin

Magneto Division



## FAIRBANKS-MORSE

*A Name Worth Remembering*



PILE DRIVER conversion of Gar Wood "75", equipped with 40 ft. boom, is shown in operation on the job near Andrews, S. C.

## Quick Field Conversions Save Time on South Carolina Bridge Job!

In constructing this small bridge near Andrews, South Carolina, the South Carolina State Highway Dept. used their Gar Wood "75" excavators on pile driving, crane, dragline and clamshell operations. The ability to make quick field conversions for the different operations was an important factor in speeding up the job.

Operators were using the dragline to load dirt into trucks with approx.

3 minutes required to load each 7 yd. truck. An average cycle time of only 45 seconds was maintained while removing soft mud with a clamshell. When operated as a pile driver, 30 ft. piles were positioned and driven in approx. 15 minutes. Ability of machine to hole piles straight, by backing up and driving at the same time, contributed to the accuracy of the work accomplished.



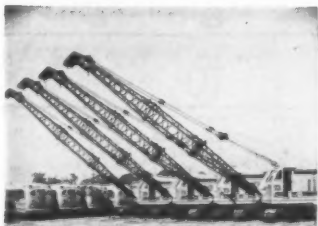
DRAGLINE using 3/4 yd. bucket was able to load 7 yd. trucks in 7 passes.



CRANE lifts logs and moves forward to place them in one fast operation.



CLAMSHELL working in mud was able to move 1/2 yd. loads on a 45 second cycle.



FOUR MACHINES, all crane equipped Gar Wood "75's", recently delivered to the South Carolina State Highway Department.

GAR WOOD INDUSTRIES, INC.

FINDLAY DIVISION • EXECUTIVE OFFICES • WAYNE, MICHIGAN

Construction Equipment: Excavators, Dozers, Ditchers, Scrapers, Spreaders, Finegraders. Truck Equipment: Dump Truck Bodies & Hoists, Winches & Cranes.



F-4001-N



Riding high enough in the Hudson River to navigate the channel, one of the boxes is guided downriver to the bridge site by tugs.

## Buoyant-Type Bases Support Bridge Piers

*Hollow boxes, constructed of reinforced concrete, are floated into place for 3-mile Thruway span*

UTILIZING A CONSTRUCTION principle first developed during World War II, a contractor is using hollow concrete boxes to provide a buoyant-type base for a 3-mile bridge which will carry the New York State Thruway across the Hudson River between Tarrytown and South Nyack, N. Y. (see C. & E., July, 1953, pg. 10). Eight reinforced-concrete caissons—the first of their kind used in this type of construction—will serve as the floating base for the bridge. Madigan-Hyland, New York,

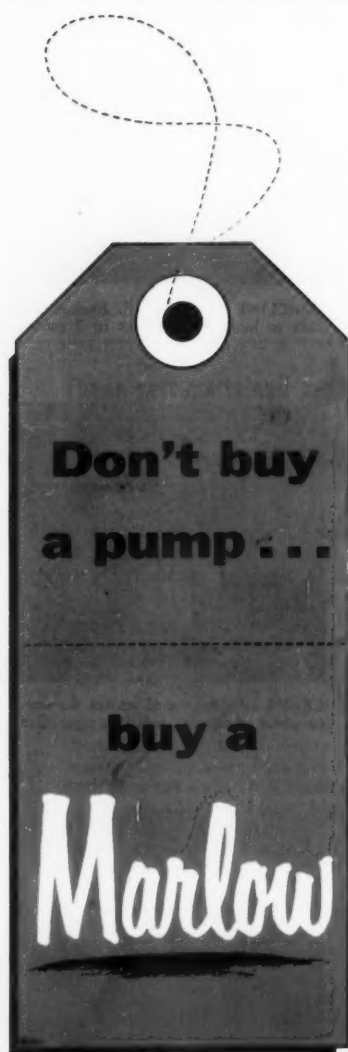
N. Y., engineering consultant for the Thruway, specified this unusual type foundation since solid rock, lying between 230 and 300 feet below the river bed, could not be used effectively and economically for pier support. The boxes will be used as river bottom bases for piers supporting the central 1,200-foot span, two flanking 600-foot spans, and the four spans to the west.

Although originally scheduled to be finished by the end of this year, the bridge will not be completed

until the summer of 1955, when the Rockland and Westchester sections of the Thruway on either side of the span will also be opened.

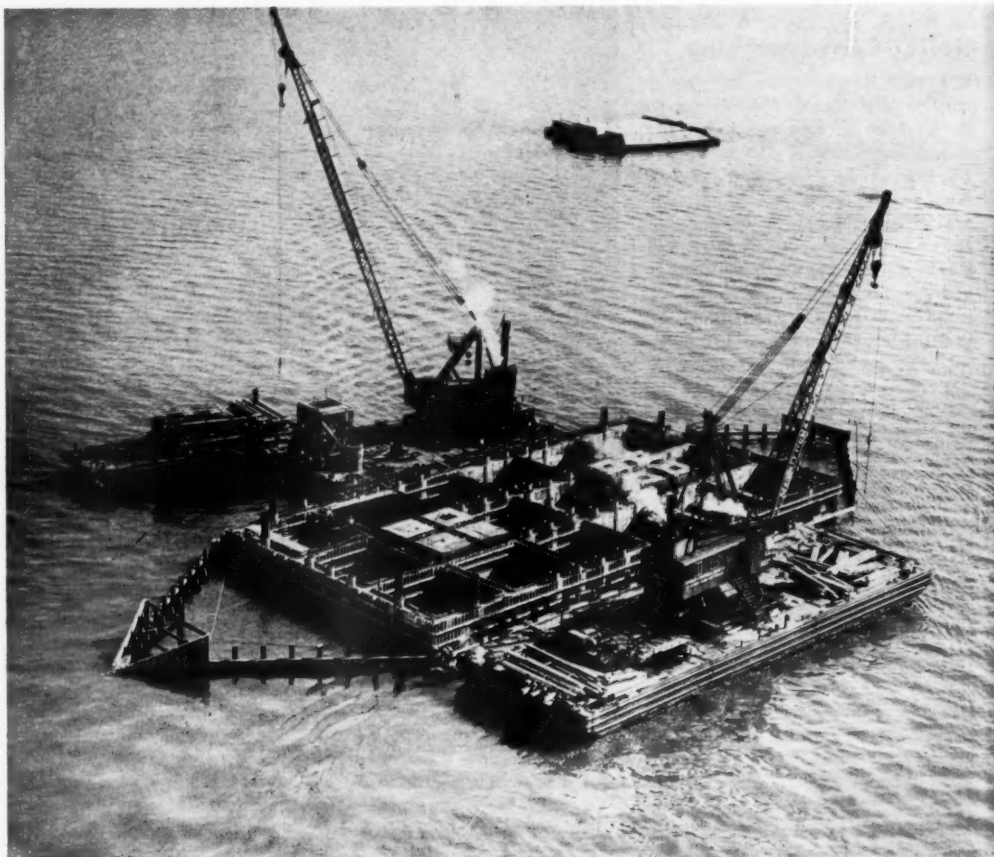
### Construction

Corbetta Construction Co., New York City, constructed the caissons for Merritt-Chapman & Scott, also of New York, holders of the contract for the easterly part of the \$60,000,000 span. The caissons were designed by Emil H. Praeger, chief engineer for Madigan-Hyland, who developed



guaranteed  
to  
perform!

MARLOW PUMPS • RIDGEWOOD, NEW JERSEY



One of the buoyant concrete boxes which will support a pier for the New York State Thruway bridge across the Hudson River is moored inside the pier's fender and ice breaker system. When completed, the box will be sunk into place and anchored with 30-inch-diameter piles.

CONTRACTORS AND ENGINEERS



the principle while serving as a Captain in the U. S. Navy during World War II. Floating piers like those in the bridge were first used to provide an artificial harbor for the Normandy landings.

The two largest caissons are half the size of a city block and weigh more than 16,000 tons each. For the main pier, these are 190 feet long and 100 feet wide. The two for the flanking piers are 124½ feet long and 77 feet wide, and the four smaller ones are 100 feet long and 56 feet wide. Base slabs are about 28 inches thick. Exterior walls are 45 inches thick, widening to 56 inches where they are pierced by wells through which piles will be driven.

#### Compartments

The hollow interiors are divided into reinforced compartments, with an intermediate slab running the length of each caisson. Weep holes connect the compartments and there is a sump in each box for pumping out any seepage. The two largest caissons are divided into 24 compartments, the two medium-sized boxes into 12 compartments, and the four smaller boxes into eight compartments. All of the caissons were built simultaneously in a large natural drydock on the west bank of the Hudson about ten miles north of the bridge site.

The steel fabrication yard was at the south end of this basin. Located at the northern end of the natural drydock, was the form fabrication yard.

This is the basin which the same contractors used when they joined forces in 1951 to build three similar buoyant-type boxes of reinforced concrete for the substructure of Pier 57 in New York City. (See C. & E., Aug., 1951, pg. 9.) Almost the same procedure used in the construction of the Pier 57 sections was followed in building the boxes for the Thruway bridge across the Hudson.

#### Boxes Floated

The drydock was a worked-out claypit that had filled with water to form a lake almost half a mile long, 600 feet wide and up to 42 feet deep. The first job was to rebuild the dike between the claypit and the Hudson River and this took a total of 50,000 cubic yards of fill material, together with 25,000 cubic yards of gravel. About 350,000,000 gallons of water was removed from the pit with four 10-inch Marlow pumps driven by Waukesha gasoline engines. The bottom of the pit was graded, and concrete foundations built about 30 feet below the level of the river. Then the caissons were built atop these platforms. When the boxes were completed, river water was let into the pit through a valve-controlled 30-inch-diameter pipe which ran through the embankment separating the pit and the river. While the drydock was filling with water, a constant watch was kept to insure that the caissons floated off their bases as planned.

#### Guided Down River

A channel was then dredged through the embankment and the caissons were pushed into the Hudson. The boxes were not built to the full 40-foot elevation in the drydock since they would draw too much water to navigate the channel. The last few feet of the walls and

concrete deck were added after the boxes were positioned on the surface at the bridge site.

The first box floated out was 35 feet high and had forms in place for the last concrete lift. This caisson, drawing 27½ feet of water with about 7½ feet of bulk showing above the surface, rode sufficiently high in the river to make the trip downstream.

Guided to the bridge site by tugs, the box was floated into position and moored temporarily within the fender and ice breaker system built for the pier. One of the four sides of this system was left out

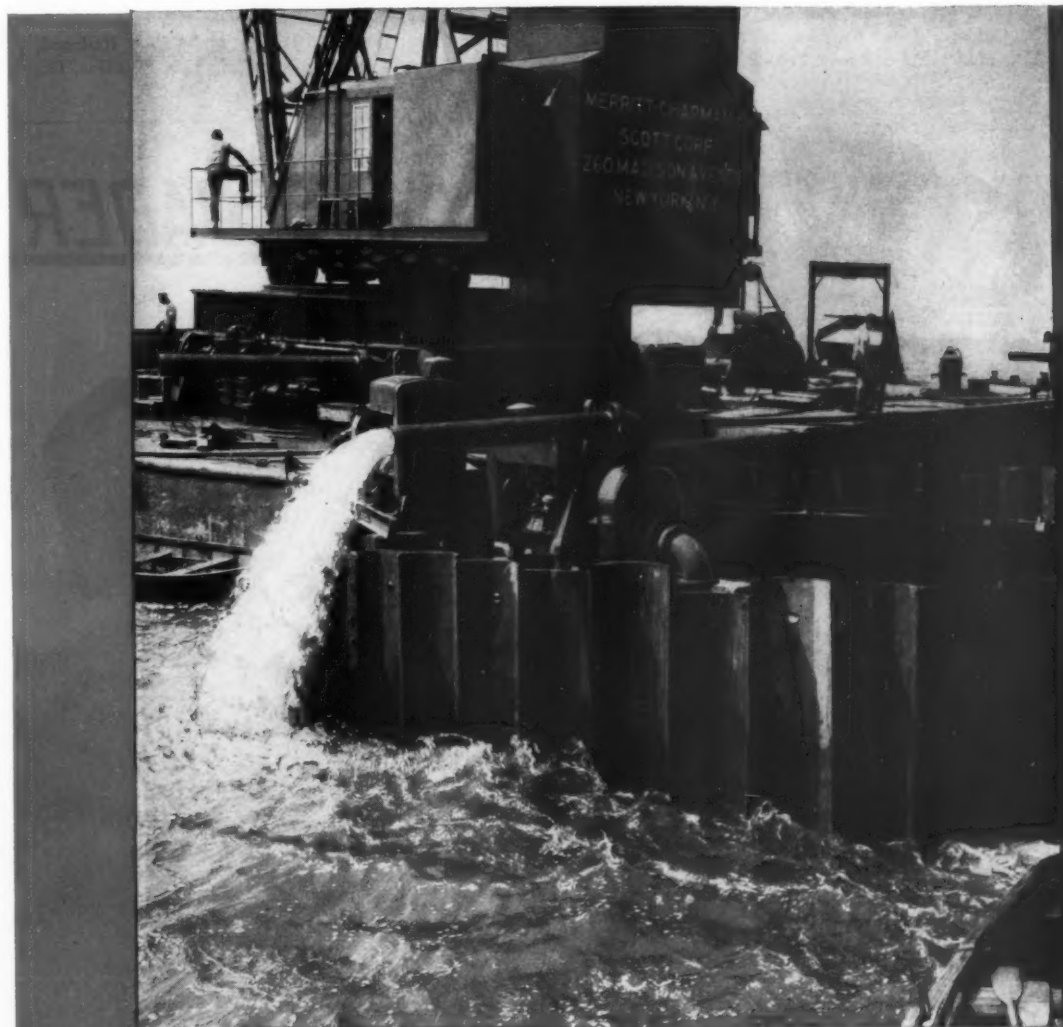
while the box was shunted into place and moored accurately over the exact place it will occupy on the river bottom. The last concrete lift was added to the box by a Merritt-Chapman & Scott floating concrete-mix plant.

#### Boxes Will Be Anchored

All the boxes will be sunk onto a five-foot blanket of sand and gravel on the river bed by pumping water into their hollow interiors through an entrance hatchway sticking out over the top of each caisson. Except for this hatchway, the 40-foot units will be two feet below the

surface of the river. Later, as the superstructure is erected, the water will be pumped out of the caissons through the hatchway. This will give them enough buoyancy to support about 80 per cent of the bridge's overhead dead weight. Piles up to 270 feet long will be driven to bed rock through wells in the walls of each box to support the balance and the live load. After the 30-inch-diameter piles are driven, they will be cleaned out and filled with concrete. Then they will be encased within the walls by concrete to pin the buoyant boxes permanently in place.

THE END



**PIERS FOR THE THREE MILE BRIDGE** over the Hudson River on the New York State Thruway between Nyack and Tarrytown created no problem for Merritt-Chapman & Scott Corporation of New York City. Of a total of 23 piers, 15 were built with cofferdams, two for each pier. Dependable, 8" AGC rated Marlow Self-Priming Centrifugal Contractor's Pumps were used on the job to dewater the cofferdams quickly and handle seepage water efficiently.

## marlows are dependable!

Construction bids must be *right* to get the job and make a profit! Progressive operators use new methods and modern equipment to reduce costs. When it comes to pumping jobs, more and more contractors know they can depend on rugged, efficient Marlow Self-Priming Pumps or famous Marlow "Mud Hogs" to get the job done *on time* with little attention and low maintenance. See your Marlow dealer or write for Bulletin C-52.

**MARLOW PUMPS • RIDGEWOOD, NEW JERSEY**



The Mall Pow'r Trow'l, a new concrete trowel recently announced by the Mall Tool Co.

### Concrete Power Trowel

■ A new power trowel is announced by the Mall Tool Co., 7725 S. Chicago Ave., Chicago 19, Ill. The Model TG-4 Pow'r Trow'l for

both floating and finishing work comes equipped with 14-inch tool-steel finishing trowels set in a 34-inch-diameter ring. Eighteen-inch floating trowels are also available. Set in a 48-inch ring, these drive

out air pockets and bring up moisture and large aggregates to provide a uniform surface.

The TG-4 is powered by a one-cylinder, air-cooled, 2-hp gasoline engine with direct in-line drive. Special features include a thumb throttle and cutoff switch mounted on the handlebar; an auxiliary carrying handle mounted under the operating handle; a tool tray for holding bags of sand, gravel, or steel slugs for extra weight; a top hook for easy lifting from one floor or level to another; and a protective covering bag.

For further information write to the company, or use the Request Card at page 18. Circle No. 642.

*The shortest railroad in the United States is the Valley Railroad, 0.57 mile in length, at Westline, Pa.*

### Lift Slab Method Sold To New Corporation

The Youtz-Slick Lift Slab method of construction, conceived almost simultaneously by a New York architect and a Texas businessman, has been purchased from the two research institutes which were entrusted with its development. A new firm, the U. S. Lift Slab Corp., 915 Congress St., Austin, Texas, has become the domestic and foreign licensor of the method.

The Youtz-Slick Lift Slab method was conceived in 1948 by Philip N. Youtz, a Yorktown Heights, N. Y., architect, and Tom Slick, a businessman in San Antonio, Texas. The two men combined their ideas and patents, and placed the responsibility for development and research with the Southwest Research Institute and the Institute of Inventive Research in San Antonio.

Basically, the method consists of pouring the upper floors of a structure at ground level in their relative positions in the building, lifting them to the proper elevations, and then permanently fastening them to the columns at these points. Since its inception, it has been praised for the economies it has effected through savings in time, labor, and materials.

Licenses already have been granted by the U. S. Lift Slab Corp. to the following: The Austin Co., Cleveland, Ohio; Daniel Construction Co., Greenville, S. C.; Lift Slab, Inc., San Antonio, Texas; Lift Slab of Puerto Rico, Inc., Hato Rey, P. R.; Long Construction Co., Kansas City, Mo.; Frank R. Lount & Son, St. James, Manitoba, Canada; Northwest Lift Slab Corp., Spokane, Wash.; The Ohio Lift Slab Co., Cleveland, Ohio; and Vagtberg Lift Slab Corp., Los Angeles, Calif.

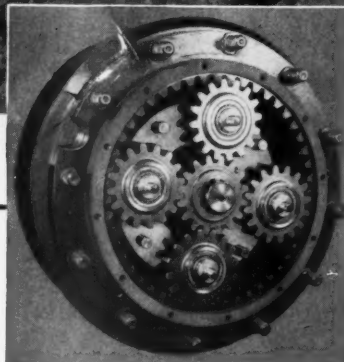
### Sherman Names Johnson

Chesley H. Johnson has been appointed district sales manager in the New York and New England territory for Sherman Products, Inc., Royal Oak, Mich., manufacturer of hydraulic backhoe-type earth diggers. He is experienced in the implement and automotive industries.



**\* axle strain reduced 300% by planetary gears \***

One of the outstanding exclusive features in the new Baker-Lull 4-wheel drive SHOVELoader is the use of 3 to 1 planetary gear reductions in each of the four wheels. This eliminates drive line failures by a 300% reduction of shock loading and strain to axle shafts, differentials, ring gears, pinions, transfer case and transmission. It also substantially reduces clutch wear. Other exclusive built-in features increase utility by providing natural digging action, improved operation in rough terrain, greater operating safety, mobility and general versatility.



Four planetary gears, with 3 to 1 gear reduction, coupled with 5.28 to 1 reduction in differential, provide 15.84 to 1 total axle reduction. Use of 4 planetary gears divides gear-tooth loading by a factor of 4, eliminating failure in gear assembly.

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CONTRACTORS AND ENGINEERS



## Convention Calendar

### January 5-7 American Road Builders' Assn.

Meeting, American Road Builders' Association, Hotel Chalfonte-Haddon Hall, Atlantic City, N. J. Norman T. Almquist, Administrative Services Manager, World Center Bldg., Washington 6, D.C.

### January 5-7 Northeastern Weed Control Conference

Meeting, Northeastern Weed Control Conference, Hotel New Yorker, New York, N.Y. Walter C. Jacob, Secretary-Treasurer, Department of Vegetable Crops, Cornell University, Ithaca, N. Y.

### January 12-14 National Constructors' Assn.

Annual Meeting, National Constructors' Association, Hotel Commodore, New York, N. Y. C. B. Bronson, Secretary-Treasurer, 50 E. 41st St., New York, N. Y.

### January 12-15 Highway Research Board

Annual Meeting, Highway Research Board, Academy of Sciences, Washington, D.C. Fred Burggraf, Director, 2101 Constitution Ave., Washington 25, D. C.

### January 12-15 American Society of Photogrammetry

Meeting, American Society of Photogrammetry, Shoreham Hotel, Washington, D. C. C. Earl Palmer, Secretary-Treasurer, 1000 11th St., N.W., Washington, D. C.

### January 28-30 High-Speed Computer Conference

First High-Speed Computer Conference, Louisiana State University, Baton Rouge, La. Dr. Leon Megginson, Conference Chairman, Louisiana State University, Baton Rouge, La.

### January 31-February 4 Associated Equipment Distributors

Thirty-fifth Annual Meeting, Associated Equipment Distributors, Waldorf-Astoria Hotel, New York, N.Y. P. D. Hermann, Executive Secretary, 30 E. Cedar St., Chicago, Ill.

### February 1-3 Assn. of Asphalt Paving Technologists

Annual Meeting and Technical Sessions, Association of Asphalt Paving Technologists, Kentucky Hotel, Louisville, Ky. Ward K. Parr, Secretary-Treasurer, Box 376, Ann Arbor, Mich.

### February 1-5 American Society for Testing Materials

Spring Meeting, American Society for Testing Materials, Shoreham Hotel, Washington, D. C. G. A. Wilson, A.S.T.M., 1916 Race St., Philadelphia, Pa.

### February 15-19 American Society of Civil Engineers

Meeting, American Society of Civil Engineers, Atlanta-Biltmore Hotel, Atlanta, Ga. Don P. Reynolds, Assistant to Secretary, 33 W. 39th St., New York, N.Y.

### February 15-19 National Ready Mixed Concrete Assn. and National Sand and Gravel Assn.

Twenty-fourth Annual Convention of NRMCA and the thirty-eighth Annual Convention of National Sand and Gravel Association, Conrad Hilton Hotel, Chicago, Ill. Vincent P. Ahearn, Executive Secretary, 1325 E. St., N. W., Washington, D. C.

### February 23-25 Utah Highway Engineering Conference

Fifteenth Annual Utah Highway Engineering Conference, University of Utah Union Bldg., Salt Lake City, Utah. A. Diefendorf, Conference Director, Civil Engineering Bldg., University of Utah, Salt Lake City, Utah.

### February 25-27 American Concrete Pipe Assn.

Forty-sixth Annual Convention and Meeting, American Concrete Pipe Association, Fairmont Hotel, San Francisco, Calif. Howard F. Peckworth, Managing Director, 228 N. LaSalle St., Chicago, Ill.

### March 1-4 Associated General Contractors

Thirty-fifth Annual Convention, Associated General Contractors, Statler and Biltmore Hotels, Los Angeles, Calif. Mr. C. I. Mehl, Administrative Assistant, 1227 Munsey Bldg., Washington, D. C.

### March 3-5 New York State Assn. of State Highway Engineers

Annual Convention, New York State Association of State Highway Engineers, Headquarters—Arlington Hotel, Binghamton, N. Y. Joseph Scott, Chairman of Reservations, P.O. Box 1001, Binghamton, N. Y.

### March 10-12 Assn. of Highway Officials of North Atlantic States

Meeting, Association of Highway Officials of North Atlantic States, Shoreham Hotel, Washington, D. C. A. Lee Grover, Secretary-Treasurer, 1035 Parkway Ave., Trenton, N. J.

## Steel Institute Elections

All the officers of the American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y., have been re-elected to serve until 1956.

Re-elected were: John E. Jackson, president of the Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., president; Earle V. Grover of Apex Steel Corp., Ltd., Los Angeles, Calif., first vice president; N. P. Hayes of the Carolina Steel & Iron Co., Greensboro, N. C., second vice president; James M. Straub of the Fort Pitt Bridge Works, Pittsburgh,

Pa., treasurer; M. Harvey Smedley, secretary; and L. Abbett Post, executive vice president.

## Highway Engineer Exam

The U. S. Civil Service Commission has announced an examination for highway engineer trainee positions paying \$3,175 and \$3,410 a year with the Bureau of Public Roads in Washington, D. C., and throughout the U. S. Some overseas positions may also be filled.

Applicants must pass a written test and must have completed appropriate college study or expect to

complete their study no later than September 30, 1954. Progressive experience in civil engineering may also be qualifying for jobs paying \$3,410 a year. The maximum age limit, waived for persons entitled to veteran preference, is 35 years.

Further information and application forms are available at many post offices or from the U. S. Civil Service Commission, Washington 25, D. C. Applications will be accepted by the Executive Secretary, Board of U. S. Civil Service Examiners, Bureau of Public Roads, Department of Commerce, Washington 25, D. C., until February 9, 1954.



## "We're rock specialists— and so are our MICHIGANS!"

says Dominick Cutrupi, Jr.

**Project:** Sewage Disposal Plant, West New York, New Jersey

- Trench 12' to 20' deep, practically a through solid rock
- Install 2000 ft. of 84' diameter concrete pipe, 8-ton sections.

**Contractor:** D. Cutrupi & Sons  
Fort Lee, New Jersey

**Equipment:** 3 MICHIGAN 1/2 yard shovel cranes  
Two TLDT-20, one TMDT-16

"10 hours a day, six days a week muckin' out rock, doing work of 3/4 yard machines—our MICHIGANS take big-league punishment

"Just as tough as the trench job, almost the whole length through solid rock, is the handling of pipe. A pipe section is lifted off a flat-bed truck by the crane, one end is butted against the front of the machine, and the crane is 'walked' about 300 feet to point of installation—a really delicate operation.

"That MICHIGAN combination of delicate 'handle-ability' and fast, positive air-control action is what we like most.

"Maintenance?—On our seven-year old MICHIGAN TMDT-16 we've spent less than \$1000 on maintenance and repairs.

"Our MICHIGANS make money for us."

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## Construction Machinery Division

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Check the MICHIGAN Line, point by point, against all others . . .

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Talk to the MICHIGAN dealer; and send for the interesting and easy-to-use MICHIGAN Fact-Folio—all the information you want, in handiest form. Use the coupon.

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### Tire-Removing Tool

■ A tool for removing a 20 or 22-inch tire from its wheel or rim is available through A. W. Stowe, Box 1168, Washington 13, D. C. The Truc-Tire tool may also be used to hold the tire and wheel in such a manner as to make tire inflation safe for the operator by eliminating the danger of an exploding locking ring.

To press the tire from a rim, the operator places the tire and wheel on the tool with the side having the removed locking ring down. He then places the combination bead breaker and stripping ring in an expanded position on top of the tire. On this, he places the wooden pressure bar and brings the hydraulic jack into place with a slight pressure to allow entry of the stripping ring between the bead and the wheel flange. The next step is to close the loosely placed stripping ring into a tight circle by means of a hand lever. A few strokes of the handle of the jack will then strip the tire from its rim or wheel.

For further information write to Mr. Stowe at the above address, or use the Request Card at page 18. Circle No. 531.

### Field Office Trailers

■ Field office trailers are illustrated in a booklet from the International Trailer Co., Inc., 5712 Erdman Ave., Baltimore 5, Md. It is pointed out that these trailers are not converted from other uses but are designed from the start to be field offices. Sketches and photographs describe the built-in office furniture.

The 35-foot-long Model FO-35 trailer has an 89 x 30-inch superintendent's desk in a private office at the rear. A 92-inch clerical desk is on the curb side at the front of the trailer under a picture window, and a 36 x 74-inch drafting table is on the curb side with blueprint racks at the forward end. Overhead cabinets are also provided. A 32-foot and a 28-foot model are similarly furnished.

The trailer chassis is made of electrically welded structural-steel channel mains and cross members. The body is constructed of fir frame members with all joints mortised and screwed. Floor runners are bolted to the chassis. A Homosote subfloor is built under a 3/4-inch exterior plywood floor. There is 2 inches of insulation in the walls, ceiling, and floor. A 30,000-Btu-capacity kerosene heating stove with blower provides heat.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 591.

### New Arc Welder is Diesel-Engine Driven

■ A diesel-engine-driven arc welder of 300-amp capacity for locations where electric power is not available is announced by the Hobart Bros. Co., Dept. DW, Hobart Square, Troy, Ohio. The welder is powered by a General Motors Model GM-2055 two-cycle unit-injection diesel engine. Features of the power unit include oil cooling, displacement blower, fuel filtration, and easy starting. The engine has a piston displacement of 141.8 cubic inches and is rated at 67 hp and 1,500 rpm.

Equipped with Hobart's Multi-Range dual control and with remote control, the new welder permits the operator to make fine voltage-amp adjustments right at the work, eliminating unnecessary steps



from the work to the machine and back again. Other features include separate excitation and two-way ventilation said to give a smoother, more productive arc at all current values.

For further information write to the company, or use the Request Card at page 18. Circle No. 611.

### Shoes for Wood Piles

■ Literature on steel shoes for wood piles is available from the American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, Pa. The pile shoes, which fit over the end of a sharpened pile, have a pointed tip of solid steel bar stock turned to a sharp point and welded into the shoe.

Nail holes are provided for fastening the shoes, and no rounding of the point of the pile is necessary. Bending holes permit a good fit to the sides of the piles, with the "wings" taking the proper contour of the pile under a sledge hammer blow. The pile shoes are available for 6 to 14-inch-diameter piles.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 601.

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An Acrow Shore with hairline adjustment can be set in less than a minute—by one man! The all-steel construction of Acrow Shores gives you safer shoring, too, with guaranteed load capacity.

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Available with standard head 6" x 6" beam-type 14" x 4", and J Head 14" x 4". Flat-type head fits any size stringer. Working ranges from 3'4" to 15'.

Save labor... save materials... speed work... use Acrow Shores for your next job.

**ACROW...**



## Six Models Announced In Tractor-Shovel Line

■ Six models of a front-end loader are now a part of the new line of heavy construction equipment made by the Clark Equipment Co., Buchanan, Mich. The company also manufactures the Michigan power shovels, cranes, and draglines as a result of its acquisition last May of the Michigan Power Shovel Co., Benton Harbor, Mich.

The new Michigan tractor-shovels are to be available in three major types: two-wheel drive with bucket-wheel drive and rear-wheel steering, two-wheel drive with rear-drive wheels and bucket-wheel steering, and four-wheel drive with rear-wheel steering. The six models range in capacity from 15 cubic feet to 2½ cubic yards.



Both of these new Michigan tractor-shovels, made by the Clark Equipment Co., have rear-wheel steering. Model 75-B, above, has bucket drive, while Model 125-A, right, features four-wheel drive. Four other models in the line offer a variety of operational features.



Clark stresses that the new tractor-shovel is manufactured as an integral unit rather than as an assembly of component parts furnished by other suppliers. The design of the loader allows accessibility to all major components any-

one of which may be removed in its entirety without removing other components. Each Michigan tractor-shovel is said to be heavier by weight and to develop more horsepower than comparable equipment. The tractor-shovels use a transmis-

sion that incorporates a torque converter with a 3:1 torque multiplication factor. The transmissions, operated from two manual control levers on the steering column, is a constant-mesh type with full pressure lubrication. Another lever, emerging from the floor board, controls the two-stage overdrive which allows speeds up to 28 mph.

Steering boosters are standard equipment on all models. The foot-operated conventional clutch has been eliminated. A system of planetary reduction of 3.2:1 in the outer wheel hubs results in a low torque load on axles and provides a safety factor.

For further information write to the company, or use the Request Card at page 18. Circle No. 616.

### Unit-Cooled DC Motor

■ A totally enclosed unit-cooled dc motor for use in severe atmospheres has been announced by the General Electric Co., 1 River Road, Schenectady 5, N. Y. The new motor, said to be the smallest standard model of its type, is recommended by the manufacturer for use in the cement industry and in material-handling operations. Available in ratings from 15 to 200 hp, it is said to provide 50 per cent greater heat transfer in a 37 per cent smaller unit than previous designs.

Compact cooling units, mounted within the over-all length and width of the motor, permit operation at low speeds for long periods of time because ventilation is independent of motor speed. A double system of blowers makes for rapid cooling. One blower assembly forces cooling air from the room through the external passages of the cooler, while the other forces internal motor air through the closed internal passages of the air cooler. The blower motors are for three-phase 60-cycle power supply. A thermostatic relay protects the main motor in case of blower-motor failure.

For further information write to the company, or use the Request Card at page 18. Circle No. 620.

### Belt-Driven Generators

■ A line of belt-driven generators for standby electric power is shown in literature from the Pioneer Gen-E-Motor Corp., 5841-49 W. Dickens Ave., Chicago 39, Ill. Equipment illustrated includes 1 to 10-kw units, with and without gasoline engines. The literature also describes floating mounting bases and power takeoff mountings available.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 597.

# UP FAST

Memorial Hospital, Dallas, Texas, built by Robert E. McKee, General Contractor, Inc., at approximate cost of \$10,000,000. Mr. C. Brown, superintendent, used Acrow Shores on this project.

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## ADJUSTABLE STEEL SHORES

## THE WORLD'S LARGEST SELLING SHORE

# Efficient System Aids Equipment Lubrication



The start of a servicing cycle—a flagman signals the driver of a Euclid by displaying a Scotchlite "Grease" sign.

At A SIGNAL from the flagman, a big, bottom-dump Euclid swings off the haul road and into the lubrication lane of the field maintenance station. As the machine comes to a stop, a barricade drops down on the hood directly in front of the driver. Simultaneously, six men of the grease crew swarm over, under, and around the machine, greasing, checking oil, changing air cleaners, performing all the required lubrication services.

Within 2 minutes, lights on a control board begin to flash from red to green and in less than 3 minutes all the lights are green, indicating that the machine has been serviced and all workmen are in the clear. The barricade is raised, the driver of the "Euc" sounds his horn, starts the engine, sounds the horn two more sharp blasts, and pulls out of the station back onto the haul road. The entire lubrication job has taken 2½ to 3 minutes.

This is not a speed test or a demonstration, but a routine operation done 158 times per day—79 times on each of two shifts. It is a part of the carefully planned maintenance program of the joint venture of Morrison-Knudsen Co., Inc., Boise, Idaho, and Peter Kiewit Sons' Co., Omaha, Nebr., known more commonly as PK-MK, who recently completed the stage IV earthwork contract at Garrison Dam and are now engaged in stage V, the final earthwork con-

## HERE'S HOW SAUERMAN HELPED A MILL GO UNDERGROUND...



A southern cotton mill needing additional space, decided to go underground and add another floor level below the existing building. Fiske-Carter Construction Co. was selected to do the excavating. Since clearance under the building averaged only about three feet, they used two Sauerman ⅓-cu. yd. Crescent Scrapers running parallel to the columns under the mill to dig the earth and haul it to a central bay. A third scraper, working at right angles, hauled the earth out through a window.

Sauerman Crescent Scrapers are capable of doing the unusual and difficult jobs, as well as commonplace excavating, hauling and stockpiling for storage or delivery. There is a type of scraper that can be economically fitted to almost any materials handling project. Sizes range from ⅓ to 15 cu. yds. Low in first cost, they are economical to maintain and are moderate in power consumption, gasoline, diesel or electric.

Write for Sauerman News-Digest #137 describing the Fiske-Carter story in more detail. Ask for Catalog J which shows Sauerman Scrapers handling a variety of materials in various job applications, including their use with boom machines. Sauerman Bros., Inc., 564 S. Clinton St., Chicago 7, Ill.



**SAUERMAN BROS., INC.**

## MORE AND MORE MANUFACTURERS ARE INSTALLING MARVEL SYNCLINAL FILTERS AS STANDARD EQUIPMENT

Manufacturers of hydraulically actuated equipment and others with low pressure liquid circulating systems demand their equipment to perform consistently and with all the productive efficiency they build into the machine that bears their name. Since these systems must be kept free of damaging particles, the selection of a filter is an important factor. Here are some of the outstanding reasons for the increasing preference for Marvel Synclinal Filters to do this all-important job!

BECAUSE... Marvels are designed to give maximum ACTIVE filtering area rather than total filtering area. Only ACTIVE FILTERING AREA COUNTS!

BECAUSE... Marvel's greater storage space for filtered out particles allows longer periods of "production" time at absolute minimum in maintenance cost and "down-time."

BECAUSE... Marvels can be disassembled, cleaned and reassembled by any workman in a matter of minutes.

BECAUSE... Marvels (Both Sump and Line Type) operated at full efficiency in any position. Line type may be serviced without disturbing pipe connections.

BECAUSE... Marvels are protected and of sound construction to give long life and efficient filtration.

BECAUSE... Marvels (Both Sump and Line Type) are available in individual capacities from 5 to 100 g.p.m. and choice of mesh sizes ranging from coarse 30 to very fine 200, they get a filter to fit their specific requirements.

BECAUSE... Marvel not only delivers a top grade filter in both quality and performance, but delivers IMMEDIATELY—shipments are made the same day orders are received, if desired.

### FACTS—NOT CLAIMS

Engineers decide on the basis of the record, on the basis of measurable facts rather than claims of the "campaign promise" variety. Here is a fact with meaning:

**OVER 400 MANUFACTURERS MAKE MARVEL  
SYNCLINAL FILTERS THEIR O.E.M. CHOICE  
For Dependable Protection On All Hydraulic and  
Low Pressure Systems Investigate  
MARVEL SYNCLINAL FILTERS**

### WATER FILTERS

In response to the great demand, we have adapted both our sump and line models for use in all water filtering applications. No changes have been made in the basic synclinal design.



LINE TYPE  
(Cutaway)



SUMP TYPE  
(Cutaway)

**MARVEL  
ENGINEERING  
COMPANY**

625 W. JACKSON BLVD.

CHICAGO 6, ILL.

PHONE: FRANKLIN 2-4431

Marvel Engineering Company CE-1  
625 W. Jackson Blvd., Chicago 6, Ill.  
Without obligation, please send me complete engineering data on Marvel Synclinal Filters as follows—  
Catalog #106 for Oil Filters  
Catalog #300 for Water Filters  
Name .....  
Company .....  
Address .....  
City..... State.....

CONTRACTORS AND ENGINEERS





Pressure-gun grease is applied to fittings through an Alemite system. The barricade across the hood of the Euclid will remain during the greasing job.



Engine oil is added to the machine through a hose.



A member of the crew turns his light from red to green—job finished!

tract in the huge Missouri River structure.

Lubrication and minor maintenance of the 79 Euclids on the project are handled at the field maintenance station located at the side of the haul road between the borrow area and the dam. Tractors and tractor-drawn equipment are serviced at their working locations on the fill or in the loading areas by three fully equipped lube trucks. Large units, such as the shovels and drag-

lines, are lubricated by the oiler assigned to the machine. All are systematically serviced on each working shift.

#### Euclid Maintenance Station

Practically all of the 25,000,000 cubic yards in the stage IV embankment contract were hauled from the loading areas to the dam by the fleet of Euclids. Seventy of the bottom-dump type handling 25 yards per load teamed with 3 end-dumps

carrying 18 yards and 3 of the 14-yard-size to haul an average of 90,000 cubic yards of material per day. In addition to these 76 earth-hauling units, 3 Euclid water wagons with 10,000-gallon tanks haul water for moistening the fill and controlling dust on the haul roads.

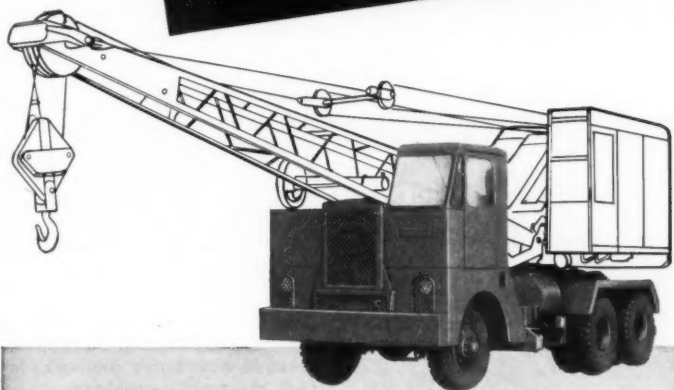
With each of these machines covering an estimated 25,000 miles per construction season, the importance of an adequate maintenance program is obvious. To provide this

service, PK-MK set up a field maintenance station where minor repairs are handled in addition to the regular servicing program. Major repairs are made at the contractor's main shops in another area.

Each of the 79 Euclids is serviced once during each shift. A flagman wearing a red and white cap and carrying a check sheet showing the number of each machine starts the servicing cycle. He selects a ma-

(Continued on next page)

## Picture Your Equipment



### On A **DUPLEX** Undercarriage

The rugged dependability of Duplex is based on over 45 years of experience in building heavy duty trucks and special equipment. We are currently supplying undercarriages in both stock and custom models for several types of construction equipment, so you will find Duplex engineering and manufacturing facilities well equipped to help you.

Call, wire or write for complete details.

**RUGGED  
DEPENDABILITY  
SINCE 1906**

**DESIGNED  
FOR YOUR  
REQUIREMENTS**

**DUPLEX**  
**TRUCK COMPANY**  
LANSING, MICHIGAN

## These NEW MULLER PLASTER and MORTAR MIXERS "have everything"!

These new Muller Mixers, with new money-saving features, live up to the well known Muller tradition for high quality with low price and low upkeep cost.

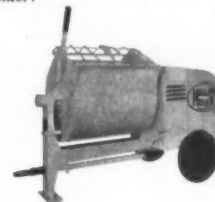
All sizes now have the Muller Paddle Shaft Seal (Pat. Pdg.) for positive bearing protection, guaranteed for the life of the mixer!

#### THE 3½' MODEL—

A new larger drum for light materials . . . choice of electric motor or either of the two best air-cooled engines, large enough to stand plenty of overload . . . power throw-out . . . hinged engine housing . . . self-lubricating, self-aligning bearings . . . ball thrust on paddle shaft . . . new safety grid.

#### PRICES F.O.B. FACTORY

1 H.P. Electric Motor	\$324.00
2.7 H.P. Briggs & Stratton Engine	\$340.00
3.1 H.P. Wisconsin Engine	\$366.00



#### ←THE 6' MODEL

Large heavy duty drum . . . double V belt drive from engine to countershaft with simple power throw-out (on gasoline models), avoiding all need for clutch adjustments . . . drive from countershaft to paddle shaft through machine cut gears . . . narrow trucks optional for indoor use.

#### PRICES F.O.B. FACTORY

3 H.P. Electric Motor 220/440 3 Ph.	\$600.00
4.5 H.P. Wisconsin Engine	\$645.00
7.7 H.P. Briggs & Stratton Engine	\$655.00

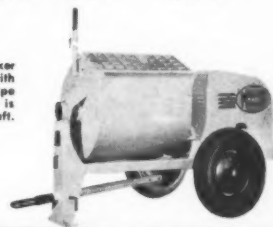
#### THE 6' TO 8' HEAVY DUTY MODEL—

The size for large jobs requiring extra capacity, or where mixer encounters extra severe service . . . regularly equipped with 7 H.P. Wisconsin Air-Cooled Engine with built-in disc type clutch running in oil . . . drive from engine to countershaft is heavy duty roller chain and machine cut gears to paddle shaft.

#### PRICES F.O.B. FACTORY

7 H.P. Wisconsin Engine	\$670.00
5 H.P. Electric Motor 220/440 V	\$700.00

Also available in 2 and 9-cubic foot sizes. Rubber Blades (Pat. Pdg.) at slight extra cost.



**MULLER MACHINERY COMPANY, Inc.**

Mail coupon for descriptive folders

Muller Machinery Co., Inc. Metuchen 15, New Jersey

Please send me descriptive folder(s) checked below:

☐ 3½' Plaster and Mortar Mixer ☐ 6' Plaster and Mortar Mixer ☐ 6'-8' Plaster and Mortar Mixer

NAME \_\_\_\_\_ POSITION \_\_\_\_\_

COMPANY \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_

STREET \_\_\_\_\_



A workman fills a water-supply tank from a scaffold on a Chevrolet truck. The same engine supplying water under pressure from the 1,500-gallon tank also operates a pump supplying motor oil to the Euclids.

## Efficient System Aids Equipment Lubrication

(Continued from preceding page)

chine which has not been serviced during that shift and displays a sign reading "GREASE" in plain view of the operator as the empty machine returns from the fill area.

The word "GREASE", in letters of Scotchlite reflective material, is visible to the driver at night as well as in daylight. Numbers on the machines are also in Scotchlite.

When the driver gets the signal, he pulls off the haul road into the field maintenance station's greasing lane. Shallow depressions in the wheel tracks not only indicate the exact point at which the machine should stop, but prevent its rolling during the lubrication operation. A

wooden barricade, hinged to the adjacent lubricant storage building, is lowered by hand until it rests on the hood in front of the operator. On this barricade a sign instructs the driver to check the water.

When a machine pulls in for servicing, all the lights on a control board located on the outside of the lubricant storage building are red, indicating that the men are at work. There are 2 lights, one red and one green, for each member of the greasing crew. As each man completes his assigned task, he steps to the board and turns his light from red to green to show that his part of the servicing is complete and that he is in the clear. When all of the lights are green, the foreman knows that the servicing is complete and that his men will not be in danger as the machine starts.

At a signal from the foreman, the barricade is raised, and the driver knows it is safe to drive away. Before starting the engine, he sounds the horn. After starting the engine, he sounds 2 additional blasts as final warning before putting the big machine in motion.

In the 2½ to 3 minutes between the time the Euclid comes to a stop and the time it is rolling again, it has been completely lubricated. Pressure-gun grease is applied to all fittings through an Alemite system. A Gardner-Denver compressor supplies air for the pressure guns. Engine oil is checked. Additional oil, if required, is supplied through a hose from a barrel to the engine.

One workman removes the oil bath unit of the air cleaner and replaces it with a clean unit. Between the servicing of the machines, he cleans the unit he has removed and fills it with clean oil so that it is ready to be re-installed. Oil from the air cleaners is salvaged, filtered to remove the dust and dirt, and is re-used. This saves a substantial amount of oil during a season.

Without the control board and other safety features it would be hazardous for a number of workmen to be on and under one of these hauling giants during so short a stop. During this system's four years of operation, however, no workman has been injured by a moving machine.

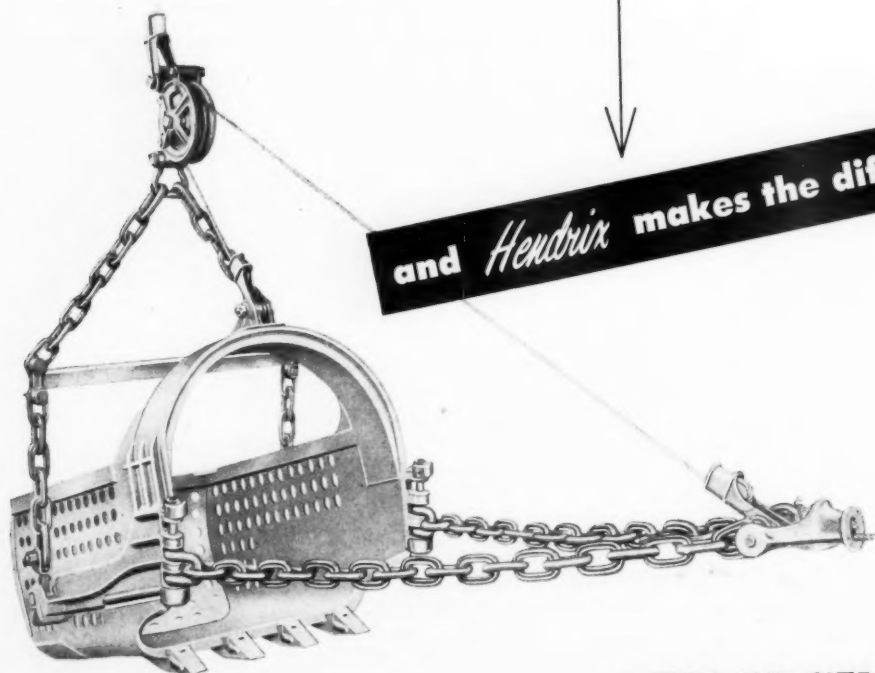
To be sure that each Euclid is greased once each shift, the flagman checks off a machine's number on his check sheet as he signals the driver into the grease pit. As an additional check, a duplicate list is kept by the greasing foreman. By cross checking the two lists before the shift is over, the foreman is assured that each machine has been serviced.

Members of the lubricating crew also provide an additional service for the Euclids. Each day, during the shutdown hour at noon and between shifts, they check the oil and water in the machines, all of which are always parked in rows at these times. Reserve water tanks on the "Euclids" are located on the top of the cab. In order to reach these quickly and conveniently, a truck is equipped with a high overhanging scaffold, and a workman steps directly from this to the roof of the Euclid to check the water.

The Chevrolet truck carrying this scaffold also has a 1,500-gallon water-supply tank and a 300-gpm

CONTRACTORS AND ENGINEERS

# there's a lot of difference in dragline buckets



¾ to 40 Cubic Yards



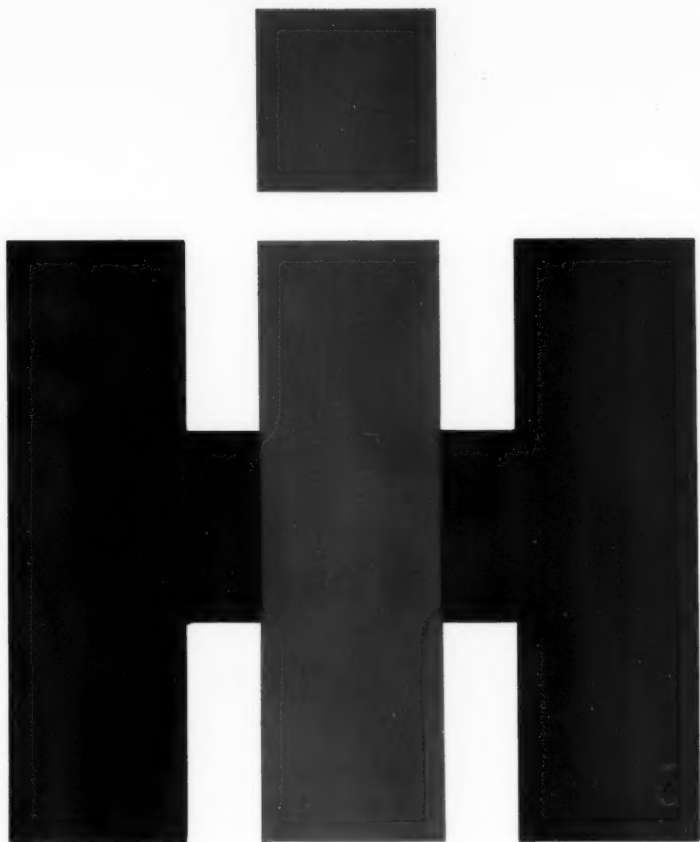
A TYPE AND SIZE FOR  
EVERY DIGGING PURPOSE

Hendrix Buckets available without perforations  
on special order.

HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA





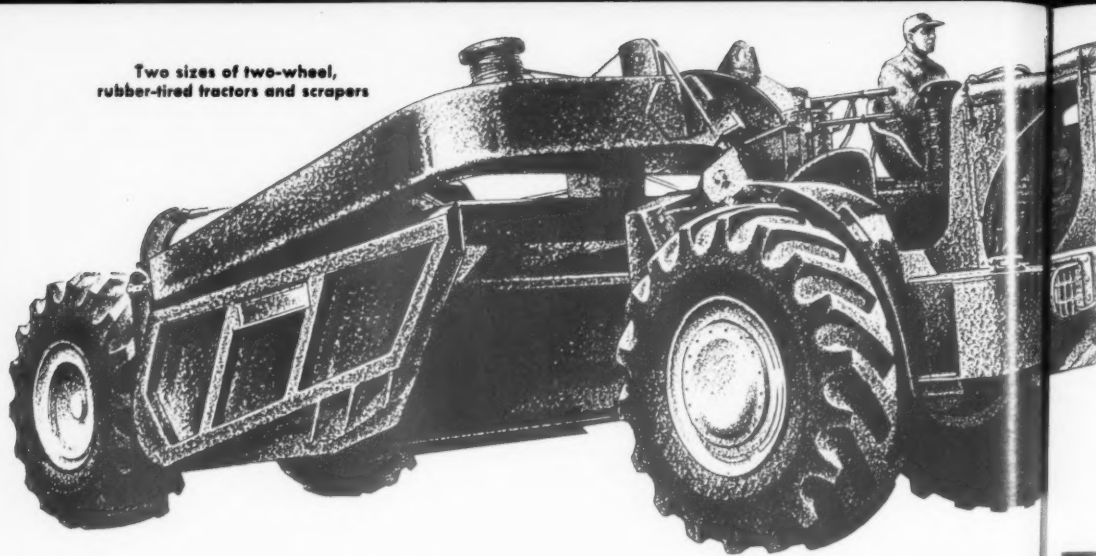
International Harvester and INTERNATIONAL Industrial Distributors  
present a complete line of modern earthmoving equipment, led by the  
INTERNATIONAL two-wheel, rubber-tired tractors with scrapers, and by  
"Big Red," the INTERNATIONAL TD-24, world's most powerful crawler



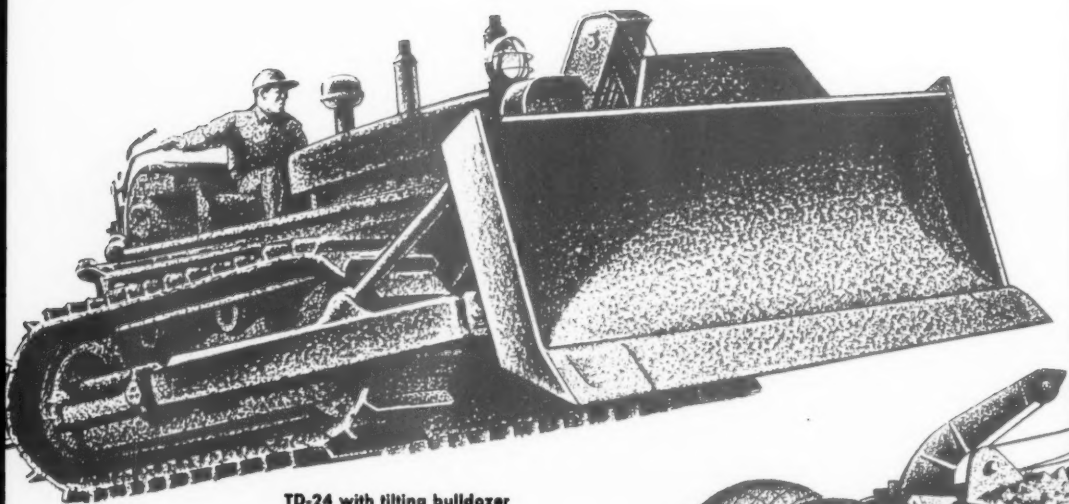
**INTERNATIONAL**

**POWER TO MOVE THE EARTH**

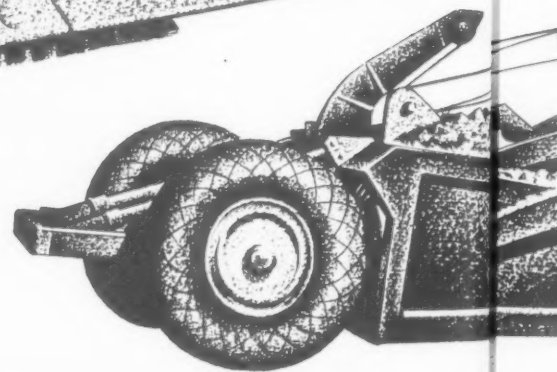
Two sizes of two-wheel,  
rubber-tired tractors and scrapers



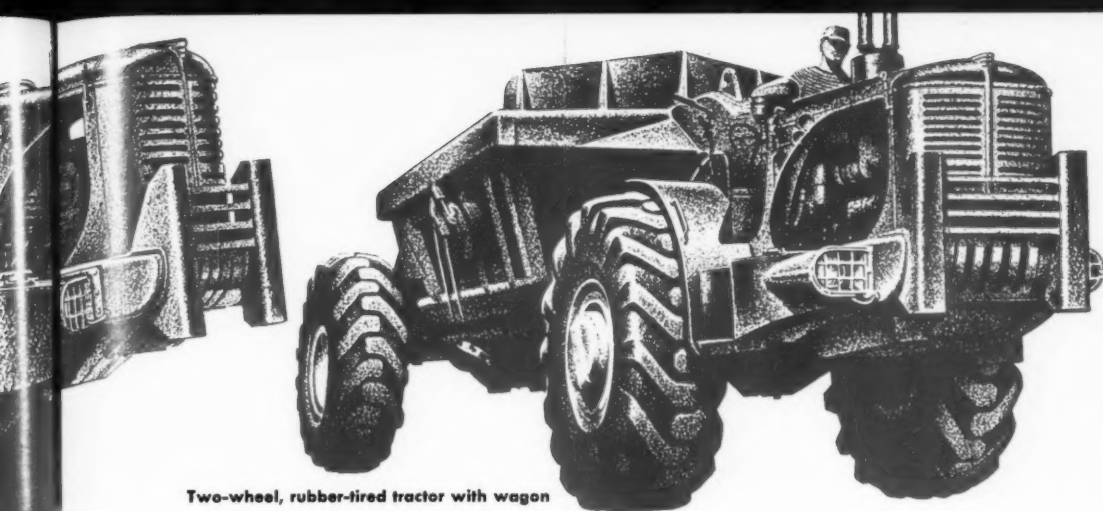
**Now a complete earthmoving line  
that comes in the**



TD-24 with tilting bulldozer







Two-wheel, rubber-tired tractor with wagon

# ne Big Red Package

Got a big job to do? Call on INTERNATIONAL'S new Big Red Team!

- Seven rugged crawlers headed by the TD-24—most powerful crawler on the market!
- Twenty-two matching hydraulic and cable-controlled bulldozers and bullgraders, with land-clearing blades available!
- Four 4-wheeled scrapers!
- Two high-speed, two-wheel, rubber-tired tractors with scrapers (13 and 18 heaped-yard capacity)!
- A high-speed, two-wheel, rubber-tired tractor with bottom dump wagon (20 heaped-yard capacity)!

These great machines, now grouped under the INTERNATIONAL banner, have proved their dependability and economy to contractors for years on big projects around the world.

Your INTERNATIONAL Industrial Distributor has the equipment that will help you make a profit on any job you tackle. Call him for full details . . . or for actual demonstrations. See for yourself!

POWER THAT PAYS



INTERNATIONAL



TD-24 crawler  
with matched scrapers

# Now All in One Family

## *the hardest-working work teams in the world!*

The new INTERNATIONAL team stars not only a full line of rugged red INTERNATIONAL crawlers, complete with INTERNATIONAL scrapers and bulldozers, but also high-speed INTERNATIONAL two-wheel, rubber-tired tractors with scrapers.

This means that now, more than ever, your INTERNATIONAL Industrial Distributor is

"Earthmoving Headquarters" for your area. He offers you IH equipment to tackle any job, backed up by unsurpassed service facilities and parts supplies.

He's at your call, always, to help keep your equipment rolling . . . to cut down your down-time and pile up your profit-time . . . to serve you with INTERNATIONAL "Power that Pays!"

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



# INTERNATIONAL

## POWER THAT PAYS



TD-24 crawler with matched scrapers



Model 2T-75 two-wheel, rubber-tired tractor with 18 heaped-yard capacity scraper



TD-18A crawler with matched scrapers



TD-24 crawler with bulldozer



TD-14A crawler with cable bulldozer



Model 2T-75 two-wheel, rubber-tired tractor with 20 heaped-yard capacity bottom dump wagon



TD-9 crawler with hydraulic bulldozer



T-9 crawler with hydraulic bulldozer



TD-6 crawler with hydraulic bulldozer



T-6 crawler with hydraulic bulldozer



Model 2T-55 two-wheel, rubber-tired tractor with 13 heaped-yard capacity scraper

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Gorman-Rupp pump driven by a Wisconsin engine that supplies water under pressure to the man on the scaffold. The same engine, through an additional V-belt drive, operates an oil pump which supplies motor oil from a barrel on the truck to the workman who checks engine oil.

#### Lubricating Tractors

Tractors, tractor-drawn equipment, and motor graders are lubricated during their down hours at lunch time and between shifts by special crews. Three mobile lube trucks make the rounds of this equipment, one servicing the machines in the loading area, one, the machines on the fill, and the third taking care of all others and assisting the first two lube trucks.

A lube truck consists of a 1½-ton Chevrolet flat-bed truck and carries a supply of oils and greases, the necessary tools and equipment, and a crew of 3 men. Each truck has a 3-kw Kohler light plant and 6 floodlights for night work. Pressure-gun grease is applied with hand grease guns. An electrically operated gun on the truck supplies lubricant for track rollers. Motor oil, carried in a 165-gallon tank, is pumped through a hose to the engine being serviced.

Since oil or grease cannot be dumped on the ground in the loading or fill areas, all waste oil is caught and returned to containers on the truck, then disposed of at suitable locations.

The fleet of equipment serviced by the mobile lube trucks includes 48 Allis-Chalmers HD-19 and HD-20 tractors, an HD-5 tractor with front-end loader, 12 Allis-Chalmers AD-4 motor graders, 5 Euclid loaders, 3 Le Tourneau K-30 rippers, 6 scarifiers, 18 McCoy Sheepfoot rollers, a 50-ton Bros pneumatic roller, and 3 siamese tractors with dozers, each consisting of 2 Allis-Chalmers HD-19 tractors rebuilt in the PK-MK shops into a single unit which they call HD-38. This fleet plus the Euclids consume a 75-drum carload of lubricants each week of the construction season.

#### Use Liquid Petroleum Gas

While the tractors and motor graders all burn diesel fuel, the Euclids are equipped with Hall-Scott engines which burn Superfuel, a mixture of butane and propane. This fuel, supplied by Phillips Petroleum Co., must be stored and handled under pressure and requires special equipment for servicing.

Two Superfuel tankers, consisting of 2,800-gallon pressure tanks mounted on 1½-ton Chevrolet semi-trailers, supply 14,000 gallons of the fuel to the "Eucls" each day. Each truck is equipped with a Vickers system for pumping the fuel under pressure. The truck engine drives a hydraulic pump through the power takeoff. Oil from this pump turns an oil turbine which drives the fuel pump. This system absorbs the shock caused by quick opening and closing of the valves in the pressure fuel system.

During lunch hours and between shifts, the Euclids are parked in two rows in a designated parking lot, the even-numbered machines in one row and the odd-numbered machines in another. One row of machines is fueled during the 11 a. m.

to noon and 11 p. m. to midnight lunch hours. The other row receives its fuel supply twice a day between the hours of 5 and 6, both morning and afternoon. Thus, in four 1-hour periods during the day, two crews fuel the 79 Euclids twice, dispensing a total of 14,000 gallons of fuel. Each "Euc" is equipped with two 110-gallon pressure fuel tanks.

A fenced area of the contractor's yard is set aside for full storage in three containers having a capacity of 90,000 gallons. Tank cars deliver the material to the siding at the storage yard. Brunner compressors take gas from the top of the storage tanks, pumping it into the top of the tank cars. When the pressure in the tank car exceeds the pressure in the storage tank, the liquid begins to flow through another line to the storage tank. An electrically driven

pump fills the truck-tankers from the storage containers.

L. V. Arbogast, superintendent of mechanical equipment for PK-MK, points out that the liquid petroleum gas has advantages, such as no oil dilution and cleaner burning, etc., over diesel fuel. The primary factor influencing the conversion of the fleet to this fuel was the fact that the Hall-Scott Model 400 engine burning this fuel develops 50 horsepower more than the largest diesel unit which could be installed in the Euclids.

Tractors and motor graders, burning 8,000 to 9,000 gallons of diesel fuel per day, are fueled on the same schedule as the Euclids by Chevrolet 1½-ton trucks carrying 1,400-gallon tanks. Diesel fuel is pumped from the supply trucks to the tractors by a Vickers pump which operates

from the power takeoff of the truck.

#### Personnel

These efficient lubricating and fueling operations are supervised by Mr. Arbogast with Carter Barr as lubrication superintendent. Ben Williams is project manager for Peter Kiewit Sons' - Morrison-Knudsen. Ed Pearson and Angelo Weir share the duties as general superintendents of embankment, and C. G. Metcalf is superintendent of intake structure. On the embankment work, two shifts of 10 hours each operate 6 days per week.

Construction of Garrison Dam on the Missouri River at Riverdale, N. Dak., is under supervision of the Garrison District, U. S. Army Corps of Engineers, Riverdale, N. Dak. Colonel Henry L. Hille, Jr., is district engineer. THE END

## Made to Last by Hard-Facing

### 19 LIVES FOR CONCRETE MIXER BLADES ▶

Concrete mixer blades hard-faced with HAYSTELLITE tungsten carbide rod have 19 times the life of unprotected cast steel blades. The hard-faced blades, used in making concrete blocks, now give 20 months of tough service operating 24 hours a day, six days a week. Unprotected blades had to be replaced every four to five weeks.



### ◀ NO MORE MONTHLY MAINTENANCE

This mud gun screw lasts for 8 to 10 months after being hard-faced with HAYNES STELLITE alloy No. 1. A single application of HAYNES STELLITE hard-facing rod eliminates at least seven shutdowns for repair. The screws previously had to be built up every month with steel rod because of severe wear on the flights.



### ◀ DOUBLES THE LIFE OF DITCHER TEETH

Hard-faced teeth on ditching machines last from two to three times longer than unprotected ones. Hard-facing with HAYSTELLITE tube rod gives the teeth the added abrasion resistance needed to tear through clay, sand, shale, sandstone, rocks, and fragments of paving material. It takes only 40 seconds per tooth to apply the rod on this special jig.

*Hard-facing can solve many of your maintenance problems. For more information, contact the nearest Haynes Stellite Company office.*

"Haynes," "Haystellite," and "Haynes Stellite" are trade-marks of Union Carbide and Carbon Corporation.

# HAYNES alloys

Trade-Mark

Hard-facing products made from cobalt-base alloys, nickel-base alloys, iron-base alloys, and tungsten carbide, in the form of rod, wire, and coils.

### Haynes Stellite Company

A Division of  
Union Carbide and Carbon Corporation

General Offices and Works, Kokomo, Indiana

Sales Offices  
Chicago—Cleveland—Detroit—Houston  
Los Angeles—New York—San Francisco—Tulsa

## Medium-Duty Trucks With Four-Wheel-Drive

■ Two new four-wheel drive International trucks for use in rough terrain have been announced. Model R-140-4x4, with a gvwr rating of 11,000 pounds, has a 130 or 142-inch wheelbase. This unit is powered by a 100-hp engine with a maximum torque of 173.5 at 2,000 rpm. Model R-160-4x4 with a gvwr rating of 15,000 pounds is available in a 154 and a 172-inch wheelbase. A 180-hp engine with a maximum torque of 192 at 14,000 rpm powers the larger model.

Front and rear axles of both new models are of the single-reduction hypoid-bevel-gear type. The transfer case in both has 1 to 1 to 1.87 gear ratios providing, in combination with the 4-speed transmissions, 8 forward and 2 reverse speeds. The transfer case is designed for mounting a torque power takeoff at the rear of the input shaft. Standard transmission is a sliding-gear selective-type with 4 speeds forward and 1 reverse with power takeoff openings on the right and left sides. An optional transmission available is a 4-speed synchromesh-type with 1 power takeoff. Both models are available with a front-mounted winch.

For further information write to the International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 539.

## Plans Are Published for Bridge Superstructures

"Standard Plans for Highway Bridge Superstructures", a publication intended to serve as a useful guide to state, county, and local highway departments in developing designs for bridges of adequate strength and economical proportions, is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at \$1.00 per copy.

Designed to be particularly valuable to the smaller highway departments, the booklet covers highway bridges on primary, secondary, and urban roads. Plans are in accordance with "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials in 1953.

Included in the several series of drawings are detailed plans for I-beams, riveted deck plate girders, welded deck plate girders, reinforced-concrete slabs, reinforced-concrete T-beams, reinforced-concrete box girders, post-tensioned precast reinforced-concrete deck girders, and precast reinforced-concrete deck girders.

## Pettibone Wood Personnel

Named as sales manager of the Pettibone Wood Mfg. Co., North Hollywood, Calif., is Robert Leibsle. The firm is a recently acquired west coast subsidiary of the Pettibone Mulliken Corp., Chicago, Ill.

Mr. Leibsle was associated with the former Wood Mfg. Co. since 1945. He has a background of experience in road and airport construction. The firm manufactures preparizers, cement tankers, and other road-building equipment.



◀ The new International truck Model R-140-4x4 has a gvwr rating of 11,000 pounds.

## Data on Concrete Rippers

■ Trailer-type rigid rippers for work on concrete, macadam, decomposed rock, hardpan, and similar material are shown in literature from the Atlas Scraper & Engineering Co., 6203 Maywood Ave., Bell, Calif. Made with box-frame construction, the rippers have three standards with self-sharpening hardfaced slip-on points. Digging depth ranges from 14 to 29 inches.

Four models discussed are made in widths from 5 feet to 7 feet 6 inches. Recommended horsepower required for these units ranges from 35 to 150. All models can be furnished with either cable or hydraulic control.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 636.

# Help for Contractors in the bidding... and on the job

IN the past 15 to 20 years, the construction industry has kept earth-moving costs down in spite of rising labor and material costs. To do it, construction men have pioneered new earth-moving techniques that have put constantly increasing demands on machinery. That's why in today's tough competitive era a man needs modern equipment that gives him a versatile outfit, easy to move from job to job... equipment that enables him to bid successfully and work at a profit.

In an effort to cooperate fully to meet these demands, Allis-Chalmers has for years geared its progress to that of the earthmover himself... now offers him completely new designs like the HD-15... a machine that takes advantage of even the most recent developments in tractor application.

The design of the HD-15 also makes full use of new metals, new oils and greases, and the latest manufacturing processes. Existing models were not allowed to restrict Allis-Chalmers engineers... so they worked right from the ground up, matching part to part, assembly to assembly, and the entire tractor to its Allied equipment. As a result, the HD-15 offers new standards in ease of operation and service, as well as long-life performance. With outstanding balance characteristics, it handles both mounted and drawn equipment well, provides maximum flexibility for the wide variety of jobs so typical of today's construction work.

And as earth-moving competition gets keener, these design advantages become more and more important to you. We invite you to talk with your nearby Allis-Chalmers dealer to compare values... see for yourself how the HD-15 can be a big factor in helping you to win bids, stay on schedule and make a profit.

**ALLIS-CHALMERS**  
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

## HD-15

109 drawbar hp.  
27,850 lb.

Six speeds forward to 5.8 mph.  
Three reverse speeds to 4.5 mph.

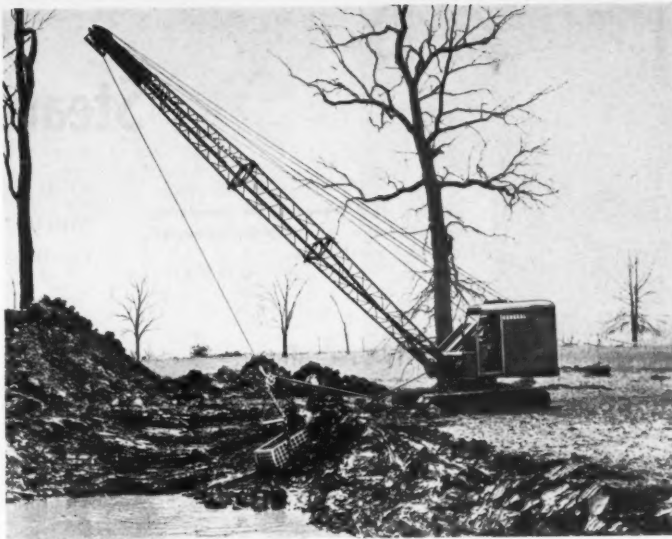
CONTRACTORS AND ENGINEERS



## New One-Yard Dragline And 17-Ton Crane

■ A new one-yard dragline, or 17-ton lifting crane, is announced by Osgood-General, P. O. Box 515, Marion, Ohio. Built into the Model 327 are such features as roller-bearing mounted hoist drums and hook-swing rollers, anti-friction bearings on superstructure main shafts, independent boom-hoist with power up and down, enclosed deck gears, and flame-hardened gears where extra stress occurs. The swing gear in the crawler frame is made separate from the crawler frame and has machine-cut teeth.

Optional features are independent travel, torque converters and fluid couplings, rapid folding and back-hitch high gantry, boom stops for safety, different widths of tread



The new Model 327 dragline, latest of the Osgood-General line of excavating equipment.

belts, and various combinations of boom-point sheaves.

The machine is manually controlled. Large diameter disk-type clutches are used on the swing shaft. The deck is a one-piece steel casting. The deck machinery is readily accessible, and any of the main superstructure shaft assemblies can be removed without disturbing the other assemblies.

The crawler is 12 feet 10 inches long and 11 feet wide. The standard boom is 45 feet long and is made with heavy tubular lacing. Boom inserts of various lengths are available. Two types of fairlead are offered, either the standard swing type or the optional revolving type.

For further information write to the company, or use the Request Card at page 18. Circle No. 584.

## Snow-Melting Chemical

■ A new 50-pound drum of the ice and snow-melting compound made by Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio, is announced. The easy-to-handle metal container keeps Ice Rem indefinitely without moisture damage, according to the manufacturer.

The ice and snow-melting chemical comes in pellet form; and contains a phosphate-type rust inhibitor to safeguard metals. In addition to the new size, it is also available in 10, 25, and 100-pound packages.

For further information write to the company, or use the Request Card at page 18. Circle No. 527.

## Tunnel Shaft Equipment

■ Tunnel machinery is illustrated in literature from Mayo Tunnel & Mine Equipment, Lancaster, Pa. Shaft equipment shown includes head frames for deep and shallow shafts, a 5-cubic-yard self-dumping skip, an enclosed man cage with safety dogs, and a skip for inclined shafts.

A series of photographs and a sketch illustrate the operation of the company's self-dumping gilliey. It is pointed out that the gilliey is designed for working in very small shafts and will prevent the muck box from swinging and catching under timbers. The literature also shows an air lock and a pneumatic grouter made by the company.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 625.

## Data on Perlite Plaster

■ How to specify and use Perlite plaster aggregate is told in a new brochure from the Perlite Institute, 10 E. 40th St., New York 16, N. Y. The booklet contains helpful specification data and information on the perlite industry's certification and labeling program for plaster aggregate. Four pages give practical hints on the causes and prevention of cracks in all types of plaster.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 541.



Constant progress in earth-moving methods has been matched by such design advances as this HD-15 and

its engine-mounted dozer . . . which were engineered and tested as a unit, right from the start.



This HD-15 Tractor Shovel is a tool which introduced a new era of tractor usefulness . . . let contractors move from job to job easily and do traditional jobs in a better, faster way.



The improvements and refinements of really modern design take on new significance as competition gets keener. Extra yardage handled . . . or lubrication time saved means working more efficiently, more profitably.



Workmen jet a wellpoint for dewatering excavation with an electrically-powered Moretrench 6-inch pump.

C. & E. Photo

## Steam Plant Under Way

CHARACTERIZED as the "hardest working river," the Wisconsin River shortly will labor for the Weston Steam Generating Plant of the Wisconsin Public Service Corp., Milwaukee, Wis. Located on the left bank of the river two miles below Rothschild, Wis., the new facility will be able to generate three times as much power as the largest hydroplant on the river.

The Wisconsin Public Service Corp. acted as its own general contractor for the project, letting a series of contracts for the several phases of construction. Pioneer Service & Engineering Co., Chicago, Ill., designed the plant.

Present plans contemplate the ultimate expansion of the plant to include four generating units with accompanying boilers, coal-handling equipment, and other facilities. The initial construction consists of one 60,000-kw turbogenerating unit with matching steam-generating equipment. The turbine is designed to operate on steam at 850 pounds pressure at a temperature of 900 degrees F. Pulverized coal will be used as fuel.

Principal structures are the powerhouse and screenhouse. Reinforced-concrete mat foundations carry the building loads to the gravel subsoil. Concrete basement walls extend 30 feet above the basement floor with a structural steel framework rising another 100 feet. The stack towers 75 feet above the

steel framework of the plant.

Intermediate floors are constructed of reinforced concrete. Precast concrete tile forms the roof structure. Exterior walls of the steel superstructure are sheathed with insulated aluminum panels.

### Condensing Water from River

Condensing water will be pumped from the river through revolving screens to the condenser at a rate of 45,000 gpm. The discharge line from the condenser connects outside the powerhouse with a discharge tunnel which extends to the river.

Coal will be received by rail, weighed on a track scale, and discharged into a hopper. A conveyor system, fed from the hopper, will have a capacity of 250 tons per hour which can be readily increased to meet future needs. Plant layout permits an ultimate coal storage capacity of 100,000 tons.

Ground was broken on August 28, 1952, and excavation for powerhouse and screenhouse foundations was started immediately. Since screenhouse footings extend to the river's edge, it was necessary to construct a dike in the river, then dewater and excavate within the dike.

The initial grading contract was awarded to Carl Bolander & Sons Co., Minneapolis, Minn., who brought in four Tournapulls, a Caterpillar D8 tractor for push-loading, and a Caterpillar dozer. Practically all of the 150,000 cubic yards of excava-

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When you buy a vehicle or machine powered by Continental Red Seal engine, you "plug in on" specialized knowledge that goes back a long, long time. You benefit from engineering features, and advances in production technique, evolved over a period of more than 50 years. Red Seal dependability, economy and stamina have long been building prestige for quality leaders in the transportation, farm, and construction equipment fields ... providing more and better power, at lower over-all cost.

Continental Motors also builds the world's outstanding line of heavy-duty four-cycle air-cooled models, for use on lawnmowers, garden tractors, and similar equipment. 2 to 3 h.p., they feature the exclusive Contex external ignition system, greatest air-cooled engine advance of recent years.



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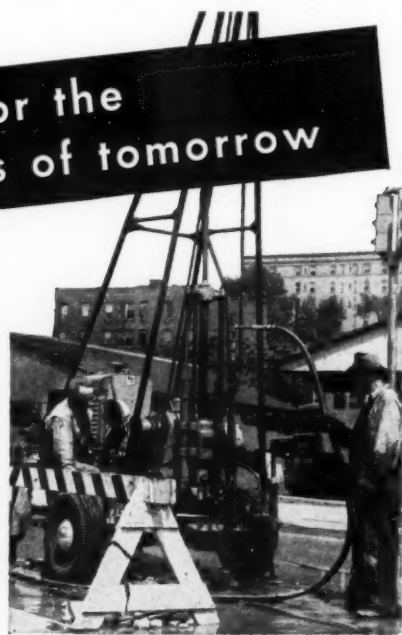
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## drilling for the highways of tomorrow

When it's better to be safe than sorry, engineers investigate underground conditions. And, that's exactly what this Acker TH drill is doing — drilling test holes over a walled-up section of the old Erie Canal preparatory to building an overhead express highway.

For low-cost, dependable sub-soil information, try an Acker on your next job. Several models available with power and type of mounting to best serve your requirements.

Write today for prices and Bulletin 30, CGE.



**ACKER DRILL CO., Inc.**

725 W. Lackawanna Avenue

Scranton, Penna.

a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment

CONTRACTORS AND ENGINEERS



# Work On Wisconsin River

*Section of river dewatered to permit excavations for screenhouse footings which extend to water's edge*

tion consisted of sand and gravel.

When the river dike had been constructed and the building excavations carried down to water level, the American Dewatering Corp., New York, N. Y., installed a More-trench wellpoint system to dewater the excavation to footing grade. Two hundred wellpoints were set in the sand and gravel 12 feet below normal river level. Three 8-inch More-trench pumps, two powered by electric motors and one by gasoline, brought the water level down so that the final excavation could be done dry.

## River Dike Removed

After building foundations and basement walls were placed, a subsequent grading contract was awarded to William Bowersock, Stevens Point, Wis., for removal of the river dike, backfilling around structures, and excavation for coal storage and handling facilities. Bowersock used five Caterpillar D7 tractors pulling La Plant-Choate, LeTourneau, and Caterpillar scrapers. Two more D7 tractors were equipped with dozers and used for push-loading the scrapers and spreading on the dumps.

Removal of the underwater portions of the dike and excavation of the condensing water discharge channel were done by a Unit Model 1020A dragline using a Pettibone Mulliken ¾-yard bucket. Some of the material was cast by the drag-

line and spread by one of the D7 dozers. Some was loaded into the scrapers and placed around more remote parts of the building walls for backfill.

Substructures for powerhouse and screenhouse were constructed by C. R. Meyer & Sons Co., Oshkosh, Wis. Footing for the powerhouse consisted of a huge base slab 128 feet wide, 173½ feet long, and 6 feet thick. The slab rests on gravel with its top at about the normal water level of the river. Concrete basement walls and turbine foundations extend up to 30 feet above the base slab.

## Concrete Pours

Walls were formed using Economy steel form panels and ties. Some of the concrete was placed by Pumpcrete directly from a hopper at the mixer. Other pours were made by transporting the mix in dump trucks from mixer to point of placement, then hoisting it in a bottom-dump bucket handled by a Lima Paymaster crane to a hopper on the forms. From the hopper, the concrete flowed by gravity through a tremie into the forms.

Jackson and Mall electric vibrators compacted the mix. Much of this concrete was poured in severe winter weather which required preheating the materials as well as covering and heating them after pouring. A railroad locomotive was

(Concluded on next page)



Gravel material is loaded into a LaPlante-Choate scraper by a Unit Model 1020A crane with a Pettibone Mulliken ¾-yard perforated bucket. Scraper is pulled by a Cat D7 tractor. C. & E. Photo

## For Hot or Cold Patching Mixtures... In Any Season

MODEL HTD-B

### McConnaughay

#### MULTI-PUG ASPHALT MIXER

Here's exactly what you need for quick, economical pavement repairs and small surfacing jobs... in any season... under wet or dry conditions. It's the McConnaughay HTD-B Mixer, precisely engineered and rigidly constructed to handle on-the-job mixtures of asphaltic concrete, sheet asphalt, sand asphalt or mastic asphalt... hot or cold... at remarkably high rates. It will enable you to meet all conditions with least effort and at lowest possible costs the year 'round. Write, wire or 'phone today for details and specifications.

## No Other Machine Can Do ALL These Things!

- Reactivate and heat stock pile mixture—up to 10 tons per hour.
- Prepare cold asphaltic mixtures—up to 10 tons per hour.
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- Dry various types of wet aggregates quickly, thoroughly.
- Remove both moisture and solvents from bituminous mixtures.
- Produce bituminous mixtures with tars, paving asphalts, cut-back asphalts, and emulsified asphalts.



## "ON-TIME" Maintenance cuts "DOWN-TIME" REPAIRS!



## HOBBS Engine Hour METERS

You get longer life and longer periods of trouble-free operation when you know the length of TIME your powered equipment has run. A revolution counter can't tell you—it takes a true timing instrument that records HOURS and MINUTES. The HOBBS ENGINE HOUR METER is such an instrument... it helps prevent breakdowns and prolong equipment life.

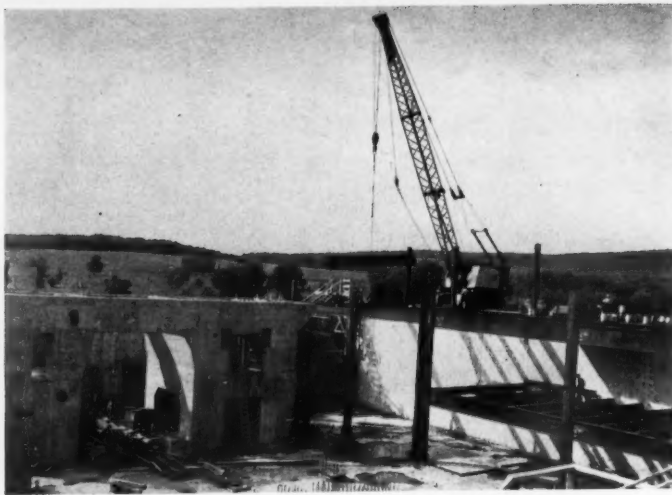
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LAFAYETTE 3, INDIANA



A Manitowoc 3000B crane sets structural steel for the powerhouse superstructure.

C. & E. Photo

## Steam Plant Under Way On Wisconsin River

(Continued from preceding page)

utilized to provide steam for heating aggregates and water. The area of the pour was housed with canvas and heated by Modine steam-unit heaters.

Turbine foundations in the basement were given a rubbed finish after the forms were removed. A Berg grinder and carborundum hand stones were used for finishing.

The contractor mixed most of the concrete in a plant set up on the job site, augmenting his supply on large pours by deliveries from Ready Mix Concrete Co., Wausau, Wis. The job plant consisted of a Blaw-Knox 50-ton three-compartment bin with weigh batcher. A

Northwest 3/4-yard crane with a Williams clamshell bucket charged the bins. Weighed materials flowed by gravity to a Rex 28-E mixer, driven by an electric motor.

Concrete was designed to be watertight and durable, since basement walls are partly below river level at flood stages. An average mix consisted of:

Cement	564 pounds
Sand	1,080 pounds
Gravel (3/4-inch to 3/2-inch)	800 pounds
Gravel (3/4-inch to 1 1/2-inch)	1,290 pounds

Water-cement ratio was maintained at five gallons per sack. Slump averaged 4 inches. Cylinder tests of this concrete showed an average 28-day strength of 4,200 to 4,500 psi.

### Steel Superstructure

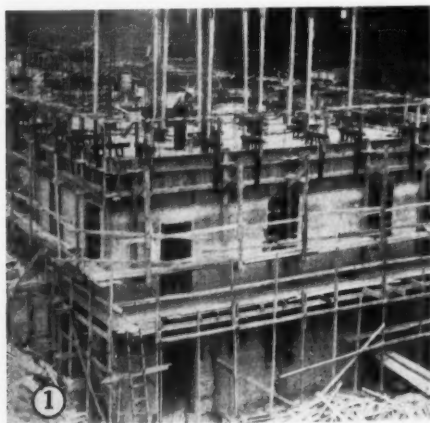
The structural steel powerhouse superstructure was furnished and erected by Bethlehem Steel Co., Chicago, Ill. Steel, received in cars on the plant siding, was unloaded by a Manitowoc 3000B crane. This same machine placed the lower steel and then set the guy derrick which raised the higher structural members. The guy derrick was powered by a gasoline-driven Thomas two-drum hoist.

Concrete substructures were completed in July, 1953, and the superstructure is scheduled for completion this month. Installation of mechanical equipment will follow as soon as possible after the structures are completed. Tentative plans are to have the plant in operation before the end of 1954.

### Personnel

G. S. Meyrick is manager of the power and engineering department of Wisconsin Public Service Corp. R. C. Straub is staff engineer for the department. O. J. Hannas was supervising construction engineer on the project, with N. A. Rick serving as construction engineer.

Robert Leyer was superintendent for William Bowersock on the grading. Orville Weinkauff was superintendent for American De-watering Corp. on the wellpoint de-watering. Harry Carr served as general superintendent for Bethlehem Steel Co., and A. E. Wold supervised the concrete construction for C. R. Meyer & Sons Co. THE END



1. Washington, D.C., 12 silos with headhouse for Wilkens Rogers Milling Co. — 120 Concretor jacks used.

2. Baltimore, Md., 14 clay bins for Locke, Inc. — 103 Concretor jacks used.

3. Charlotte, N.C., 10 silos for Interstate Milling Co. — 85 Concretor jacks used.

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Their wide use, extensive applications and improvement on screw jacking methods of slipform raising are proven facts. Synchronized jacking, controlled centrally or individually—let them work for you.

Our Engineering Department will be pleased to quote you on rental of slipform equipment, for any construction, large or small. Standard Slipform machines are available for purchase or lease.



### NEW SLIPFORM CATALOG —

32 pages of photos, drawings and text describing use of "CONCRETOR" Hydraulic Jacks and equipment on silos, apartment houses, water reservoirs, mine shafts, factories, plants, etc. Write for your copy.

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### Steel-Painting Spex

Specifications for the pretreatment of steel prior to painting and for the application of paint have been published by the Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa.

The pretreatment specifications cover the wetting oil treatment, cold phosphate surface treatment, basic zinc chromate-vinyl butyral washcoat treatment, and hot phosphate surface treatment. The four specifications may be obtained for 25 cents each, or the set for 60 cents.

The detailed paint application specifications, entitled "Shop, Field, and Maintenance Painting", apply to the necessary painting of all interior or exterior steel surfaces of structures exposed to weather, moisture, condensation, or other corrosive conditions. They are not intended to apply to painting unexposed steel or steel which is enclosed in masonry. The price is 50 cents per copy.

CONTRACTORS AND ENGINEERS





### Swivel-Type Fitting For Low-Pressure Pipe

■ A low-pressure joint has been added to the line of swivel fittings made by the Emsco Mfg. Co., Dept. 44, P. O. Box 2098, Terminal Annex, Los Angeles 54, Calif. The Type LPR ball-bearing fitting has been designed for applications and pressures to which Schedule 40 pipe would be subjected. This includes liquid and semi-liquid conveyor-line use such as conveying concrete through a hose.

The fitting is designed for a maximum pressure of 1,000 psi at a maximum temperature of 225 degrees F. Other types are available for pressures up to 1,500 psi and temperatures up to 750 degrees F.

The new ball-bearing swivel fitting is said to be free-turning with the thrust load taken directly through the center of the balls. Packing materials, including Teflon for corrosive and other services, are independent of the ball rows and are unaffected by ball race wear.

The company offers over 500 various types and styles of fittings for pipe sizes ranging from 1 1/4 to 4 inches. End connections may be scarfed, bored for welding, threaded, or flanged.

For further information write to the company, or use the Request Card at page 18. Circle No. 582.

### Heavy Equipment Trailers

■ Literature illustrating trailers for hauling heavy equipment is available from the Beall Pipe & Tank Corp., 1945 N. Columbia Blvd., Portland 3, Oreg. These units range in capacity from 10 to 100 tons and are offered in semi and full trailer models.

The 20-ton Model BDAM dual-axle trailer has a total weight of about 10,000 pounds. Like all of the company's models, it is built to specifications with any variations required to fit the job, the truck, and state highway regulations. Model B4WN is a four-wheel trailer rated at 10 to 15 tons. This pull-trailer model has a very low mounting, measuring about 24 inches from the ground to the top of the loading platform. It is suitable for hauling small tractors and shovels up to 15 tons and can be used with light dump trucks.

A six-wheel trailer, Model B6WM, is offered in capacities ranging from 20 to 100 tons. It can be built with a removable pony truck. The brochure also shows a heavy-duty 70-ton 3-axle low-bed semitrailer designed for moving large pieces of equipment. Beall also produces a 3-axle semitrailer in a 50-ton model.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 588.

### Hydraulic Crane Lifts and Carries

■ A hydraulic crane built by Austin-Western Co., 601 Farintosh Ave., Aurora, Ill., can lift and transport its maximum load any distance. With boom extended, the crane hook can be raised 24 feet or lowered 30 feet below ground level. The telescopic boom can be raised to any point between the horizontal and 45 degrees and can be rotated continuously through 360 degrees. Rated capacity of the crane ranges from 3,200 pounds at a boom radius of 18 feet to 8,000 pounds at a 10-foot boom radius.

The machine is made with a standard 6-inch center distance 50:1 Cone-Drive gearset in the boom-lifting mechanism, which is driven by a 750-rpm Vickers hydraulic motor. A



The new Austin-Western hydraulic crane combines lifting capacity with mobility.

second Cone-Drive gearset with a 5-inch center distance and 40:1 ratio is used on the crane-swing drive.

For further information write to the company, or use the Request Card at page 18. Circle No. 556.

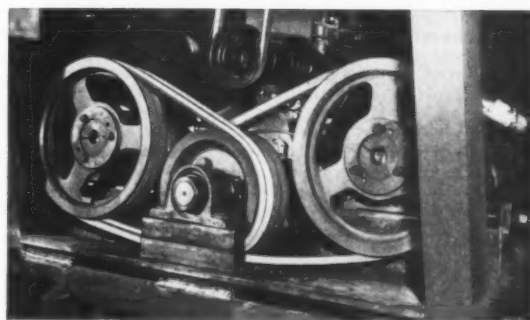


## This powerful shovel uses powerful U. S. Rainbow V-Belts

Loading and excavating calls for plenty of belt muscle. To get the best performance out of this hydraulic shovel, its manufacturers selected U. S. Rainbow® V-Belts for the drive system. They knew that Rainbow V-Belts could withstand continuous shock loads without losing their stretch.

Every U. S. Rainbow V-Belt has the unique Equa-Tensil Cord Section, exclusive with United States Rubber Company. This development insures efficient pull and strength under all kinds of conditions. Rainbow V-Belts have a protective jacket that increases the grip while keeping out dirt. The cords are treated with latex to reduce the heat generated by constant flexing. *The inherent stretch of each belt is worked out in the factory before delivery.*

United States Rubber Company has the largest collection of V-Belt molds in the world. That's why, if you want a "special" in a hurry, we can supply you right away—no need to make a new mold. Call any of our 25 District Sales Offices, or write to address below



U. S. Rainbow V-Belts on pump drive system of hydraulic shovel. The pump activates the cylinder of the shovel. The belts run continuously when machine is in motion.

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Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

## Fabric-in-Paving Film

A ten-minute film showing the paving of asphaltic concrete over welded wire fabric on a portion of U. S. 61 in Minnesota has been prepared by the Wire Reinforcement Institute, National Press Bldg.,

Washington 4, D. C. The film will be shown throughout the country for highway officials, engineers, and contractors by institute members.

Those interested in seeing the movie may write the institute requesting a list of member companies and a film-showing schedule.



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THE NEW PATENTED WIDESPREAD LEG FEATURE. REDISTRIBUTED CENTER OF GRAVITY. PRACTICALLY NON-TIPPABLE.

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## Fast Earth-Moving Job Finished at Air Base

*Renovation of World War II facility accelerated by fast work on grading and drainage project*

GRADING AND DRAINAGE work at McGuire Air Force Base, Fort Dix, N. J., a job scheduled to take 60 weeks to complete, was virtually finished within eight months after the January, 1953, starting date by the Yonkers Contracting Co., Yonkers, N. Y. Part of the job involved moving 4,000,000 cubic yards of earth at the field, now being re-outfitted for use as a jet fighter base for the New York-Philadelphia area.

The base is a World War II project and is being renovated under the direction and supervision of the Corps of Engineers, U. S. Army. The entire cost of the project, including runway extensions, new buildings, and other structures, is expected to be slightly more than \$40,000,000.

The Yonkers Contracting Co. was awarded the \$3,500,000 grading and drainage contract at the end of 1952. It called for the installation of 16 miles of drainage, much of it large-diameter Armco Multi-Plate pipe, and the moving of 4,000,000 cubic yards of earth on a 1,000-acre site, as well as the clearing of 450 acres. The latter part of the work was subcontracted to Public Constructors, Inc., Ellenville, N. Y.

### Earth-Moving

A fleet of 18 rubber-tire earth-movers, 17 crawler tractors, 7 cranes and shovels, and 4 motor graders was used for the earth-moving. Cuts had a maximum depth of about 12 feet and were generally long and shallow. The earth hauls were usually limited to 2,000 feet or less, and the haul roads were maintained constantly by graders to prevent blocks or delays.

The water table in the area was high. As a result, flooding caused some trouble on the job, particularly during the heavy spring rains. An extensive subdrainage system was designed to lower the water table and provide a firm foundation for the new construction. The system required about 30,000 feet of 6-inch and 27,500 feet of 8-inch-diameter Armco perforated pipe.

Three lines of 120-inch-diameter and two lines of 108-inch-diameter sectional plate pipe were installed in the north end of the ditch. These lines branched about 800 feet to the south, with the two 108-inch pipes extending west for some 1,200 feet, and the other three lines continuing south for about 1,000 feet. A total of 5,966 feet of 120-inch and 5,445 feet of 108-inch sectional plate pipe was used on the job. The over-all drainage plan also required the installation of large quantities of smaller-diameter pipe.



## New 1954 Chevrolet Trucks

**New Power! New Economy! New Features you want!**

New Chevrolet trucks for '54 are here to do your hauling or delivery job faster, more efficiently and more economically.

To begin with, they bring you thrifty new power in all models. You save time on every trip with extra reserves of high-compression horsepower under the hood—and you enjoy greatly increased operating economy as well.

In addition, these great new Chevrolet trucks offer new and even greater dependability with increased ruggedness throughout the chassis. You'll find heavier axle shafts in 2-ton models... bigger, more durable clutches in light- and heavy-duty models... more rigid frames in all models. Pickup and stake bodies are plenty rugged, too—and they're roomier for '54!

But that's only the beginning! You enjoy new cab comfort, convenience and safety. Instruments are easier to read... controls are easier to reach. A new one-piece curved windshield gives you greater visibility. The new Ride Control Seat\* lets you drive in relaxed comfort hour after hour, over all kinds of roads. Seat cushion and back move as a unit to "float" you over bumps without back-rubbing.

In another great advance, new Chevrolet trucks offer you the last word in no-shift driving ease and convenience. With proved truck Hydra-Matic transmission\* you can drive all day and make door-to-door deliveries without shifting or clutching. Fact is, there is no clutch!

These are some of the many big new benefits awaiting you in the new Chevrolet trucks for '54. Why not plan to get the whole money-saving story at your Chevrolet dealer's soon!... Chevrolet Division of General Motors, Detroit 2, Michigan.

**Most trustworthy trucks on any job!**



**ADVANCE-DESIGN TRUCKS**

### CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

**DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT**\*—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance. \*Optional at extra cost. Ride Control Seat is available on all cab models, "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on 1/2-, 3/4- and 1-ton models.

**THREE GREAT ENGINES**—The new "Jobmaster 261" engine\* for extra heavy hauling. The "Thrifty-master 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION**\*—offered on 1/2-, 3/4- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models.

**MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE!**

**CONTRACTORS AND ENGINEERS**





The south run, the main drainage channel in the area, was enclosed, for most of its length, except in the area north of Condor Ave., the main base highway. A triple Multi-Plate pipe arch was installed where it cut back under Condor Ave. Before the pipe was installed, temporary earth dikes were put up to divert the water table, and a bulldozer laid a gravel bed for the pipe.

Erection of Multi-Plate was well organized. Two cranes, one on each bank of the water table, lowered the plates to ditch crews who assembled it into pipe. The men set just enough bolts to hold the plates in place. Other crews followed to place the remaining bolts and tighten them. Using air wrenches to speed the work, the crews became so practiced that erection time and the cost of the job were below estimates.

Construction at the McGuire Air Force Base is under the direction of the Philadelphia district of the Corps of Engineers. Col. Walter Krueger, Jr., is district engineer, and Anthony Marolda is resident engineer for the Corps. The drainage system was designed by Whitman, Requardt & Associates, Baltimore, Md. In charge for the Yonkers Contracting Co. were Robert F. Safford, project manager; Anthony Tangredi, assistant project manager; and Arthur Cipolla, project engineer.

THE END

### Lubrication Guide Service

■ An improved lubrication-guide service has been announced by the Sinclair Refining Co., 600 Fifth Ave., New York 20, N. Y. This new service will assist operators of trucks and tractor equipment to carry out a complete preventive maintenance program and to obtain the proper lubrication of their equipment.

The service, available to contractors, includes an eight-page booklet featuring a section on lubrication and maintenance. Correct maintenance procedures for all lubricated parts are defined, and the Sinclair products which are recommended are described. Included is a chart that can be used for keeping a lubrication record on each piece of equipment.

As a part of the service, lubrication charts specifying the proper lubricant for every part on each type of truck or tractor are inserted in the booklet. Thus the booklets are made to fit the individual operator's needs.

To obtain this service write to the company, or use the Request Card at page 18. Circle No. 639.

Cranes on each bank lower sections of Armco Multi-Plate pipe to ditch crews completing grading and drainage work at McGuire Air Force Base in Fort Dix, N. J.

### Rayon Conveyor Belt

■ A rayon-carcass conveyor belt said to be sturdy but lighter than cotton-duck belts has been added to the line of the New York Belting & Packing Co., 1 Market St., Passaic, N. J. The new belt, called Nyb-Ray,

is reported to have good troughability and tear resistance, and a low stretch factor. Long flex life and the ability to hold fasteners are other features.

For further information write to the company, or use the Request Card at page 18. Circle No. 549.

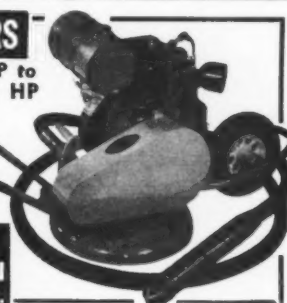
### PREFERRED by CONTRACTORS

Less initial cost — Lower upkeep 1½ HP to 5 HP

#### MARVEL CONCRETE VIBRATORS

GV-1, GV-2 & GV-3 MODELS NOW EQUIPPED WITH AUTOMATIC CENTRIFUGAL CLUTCH AS STANDARD EQUIPMENT. INTERCHANGEABLE FLEXIBLE SHAFTS. Write for full information

**MARVEL EQUIPMENT CORPORATION**  
215-217 EAGLE ST. • B'KLYN 22, N. Y.



## How to Ditch with a Motor Grader.....

**1 FIRST PASS** or marking cut is made after first setting out ditch line stakes according to the plans. The marking cut should take just a shallow cut similar to that being done by the GALION Grader in photo at right. This will help to maintain accurate alignment on succeeding heavier cuts.

For efficient ditching, blade should be turned to about a 45° angle — with the toe directly behind front wheel. Plane of the blade should be angled enough to form first windrow inside the rear wheels. Lean the front wheels away from ditch. With the simplified hydraulic control system on GALION Motor Graders, positioning of blade is quickly and easily accomplished.



**2 MAKE ALL REMAINING CUTS** count to the utmost. Apply as much pressure to toe of blade as the grader will handle smoothly. After each heavy cut, material should be windrowed towards middle of road — away from the ditching operation. Keep the windrow either inside or outside the rear wheels, otherwise you will reduce traction, efficiency and make uneven cuts trying to operate over the soft, loose windrows of previous cuts.



**3 A SLOPING CUT** should be given to the back of the ditch after its full depth has been cut. For bank sloping, all tires on ditch side should be in bottom of ditch as shown in photo above. On GALION Graders, versatile positioning of the circle is an outstanding feature. It is easy to shift the circle to right and angle the blade forward so the heel rests at bottom of slope and toe clears top of the slope for a clean, accurate cut.

If the ditch is to have a plain "V" bottom, you now take a finishing pass on the inside slope to remove the material from the bank sloping operation. Bottom photo shows a GALION Grader doing this operation. Note the large front tires which are important to front end stability of the grader on this type of operation — they are STANDARD EQUIPMENT on Galion 118, 104, and 203 Graders.



**4 TO CUT A FLAT BOTTOM** ditch, as shown in above photo, it is necessary to first cut a "V" ditch on the inside slope. The distance from the bottom of this cut to the bottom of the back slope should equal the required width of the flat bottom. In making the "V" ditch, the blade should be positioned to move the material out to the top of the road.

A flat cut is now made in the bottom of ditch. The complete length of the blade is placed in the ditch — angling the blade forward enough to place the toe at base of back slope, and the heel at base of inside slope. This operation moves the dirt to the inside slope.

**5 FINISHING THE SHOULDER** is next. One or two final passes are made on the inside slope to move the dirt up onto the road and outside the rear wheels (see photo below). A finishing pass is now made on the shoulder, with the remaining material being spread and windrowed to the center of the road where it can be evenly distributed over the road surface.



**6 TO COMPLETE** the information you should have on Galion Graders, write The Galion Iron Works & Mfg. Company, Galion, Ohio, or any of their distributors located in principal cities.

(Advt.)



The aggregate plant setup. Caterpillar diesels powered the H. K. Imperial crusher that produced subbase and pavement material.

Ray Day Photo

### Aggregate plant turns out up to 290 tons per hour for job on 8.8-mile section of U. S. 30 in Idaho

OPERATING IN A PIT where 25 per cent of the material required crushing, an aggregate plant consisting of a 10x36 jaw crusher and two 24x36 roll crushers turned out an average of between 269 and 290 tons per hour of  $\frac{3}{4}$  and 1-inch subbase and mineral aggregates for

a new 8.8-mile section of U. S. 30 outside Pocatello, Idaho. Working a nine-hour day, the daily output was as high as 2,905 tons of 1-inch and 2,628 tons of  $\frac{3}{4}$ -inch material.

Carl E. Nelson Co., Logan, Utah, constructed the new road under a contract from the Idaho Department of Highways. The 24-foot plant-mix pavement parallels the old route, which is now being torn up. The contract called for all earthwork in connection with grading, for the production and installation of asphalt plant-mix surfacing, and for the seal coat and chips which top the new surface.

The new route has an 8-foot gravel shoulder on each side, also primed and sealed. The crushed-rock subbase was placed the full width, to give positive drainage under the asphalt. Construction specifications called for 100 per cent Modified AASHTO densities in the subgrade, with 4 inches of minus 1-inch crushed rock forming the first portion of the granular subbase. Topping this are two 3-inch lifts, both of minus  $\frac{3}{4}$ -inch material. The plant-mix atop the subbase consists of a 2-inch mat, placed in one course, containing about 4 per cent of 200 to 300-penetration asphaltic cement.

#### Grading

The road passes over generally flat to rolling terrain, which con-



Drilling 20-hours a day with Jaeger 600's

## Shooting 1,500,000 tons of rock on new West Virginia Turnpike

14 cuts ranging from 30 to 147 ft. deep, a total of 1,500,000 cu. yds. of excavation, 85% of it rock... With this contract, H. W. Holt & Son put three 2 $\frac{1}{2}$  yd. shovels working two 10-hour shifts and set up to drill and shoot 16,000 cu. yds. of rock a day to keep ahead of the shovels.

They chose the most dependable

heavy duty drilling equipment yet developed for rock work—ten 4" wagon drills powered by five 600 ft. compressors, four of them Jaeger "Air Plus" units.

Drilling a steady 20 hours a day, in patterns close enough to insure good fragmentation, even cleavage and a minimum of secondary drilling,

these "teams" proved able to average the needed yield of 80 yds. per hour per drill.

Over the 88 mountainous miles of West Virginia's Turnpike (a rugged job if ever there was one), the big majority of air compressors of all makes have been 600's, the "new standard" rating introduced by Jaeger in 1946 and later adopted by all others. As yet, Jaeger "Air Plus" are the only compressors completely engineered to the other "new standard" ratings—365, 250, 185, 125, 75 cfm. Like the 600, they meet the higher requirements of today's tools with adequate air, produced at the lowest known cost per cubic foot.

For complete information, see your Jaeger distributor or ask for Catalog JC-1.

### THE JAEGER MACHINE COMPANY

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Get PRE-BID estimates by competent, practical construction men who have specialized in all phases of dewatering for up to 26 years.

All estimates based on careful analysis of sub-soil borings, on actual experience in the soils to be dewatered, and on site investigations.

When soil conditions indicate other dewatering methods are more practical and economical, we are qualified to advise other proven methods.

**26 YEARS EXPERIENCE**

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CONTRACTORS AND ENGINEERS



# Crushing top Project

Equipped with a 2,500-pound pugmill, the Madsen asphalt plant was set up close to the rock crusher.

Ray Day Photo



sisted primarily of unclassified excavation to shape up the roadbed. The earthwork in the grading portion was subcontracted to J. A. Ketchen, Pocatello, who started work June 30, 1952. Grading quantities were unbalanced, and several borrow pits were used. Because some of these pits necessitated considerable hauls, six long-range Super C Tournapulls were used. They were loaded with the aid of an International TD-24 tractor.

On hauls of less than 500 feet, three Caterpillar D8's with Le-Tourneau FP Carryalls were used. The Carryalls were also employed as finishing machines when the embankment was topped out.

Two 3,000-gallon water tank trucks, a pair of 20-ton sheepsfoot rollers, and a dozer were used for the moisture blending and the compaction. Borrowing an idea from the WASHO test road located 60 miles south of Pocatello, a Cedarapids vibratory compactor also was used on part of the job. According to state highway soils engineers at the Pocatello district office, excellent densities were produced in the light volcanic soil by the Cedarapids machine.

## Aggregate Plant

Investigations showed the best source of rock for aggregates to be near the west end of the job. An H. K. Imperial plant, built by the

Flaherty Equipment Co., Pocatello, was set up with a drive-under surge bin for truck loading. This single crusher setup produced all the tonnage for the project.

A Caterpillar D375 diesel engine powered the roll-crushing units, while a D8800 worked the jaw crusher. During a two-week period, the plant turned out 12,314 tons of 1-inch aggregate in 42.5 hours and 14,391 tons of 3/4-inch material in 53.5 hours.

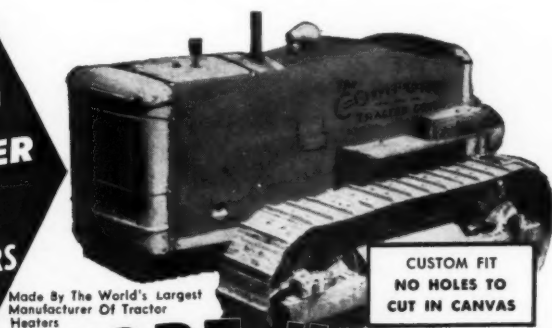
The classification of the aggregates was as follows:

Size Sieve	Per Cent Passing
Base Course	
1-inch	100
3/4-inch	40-65
No. 200	0-12
Surface Course	
3/4-inch	100
3/8-inch	45-65
No. 10	25-40
No. 200	0-12
Hot-Mix Filler	
3/4-inch	100
3/8-inch	48-58
No. 10	30-40
No. 200	3-9

Mineral aggregate for the plant-mix was stockpiled close to the asphalt plant. Material for the granular base course was trucked to the placing point, dumped according to volume measure, and carefully blade-mixed and watered prior to rolling. The rock base was heavily rolled by both pneumatic and steel-wheel machines before being sealed by 0.26 gallon of MC-1 prime coat,

(Concluded on next page)

The  
Improved  
**HEATER**  
for  
CRAWLERS



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Manufacturer Of Tractor  
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CUSTOM FIT  
NO HOLES TO  
CUT IN CANVAS

# COMFORT HEATER

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Canadian Pat. No. 471,256

**PROVIDES 7 ADVANCED IMPROVEMENTS  
NO OTHER CRAWLER HEATER CAN MATCH**

- ✓ Designed to accommodate dozers and other generally used equipment.
- ✓ Special tailored flaps allow easy access to starting motor, oil sticks, etc. No holes to cut.
- ✓ Tractor operating controls in protected area.
- ✓ Motor side panels fold back for heat control on warmer days.
- ✓ No ties or springs under tractor to snag on brush or other obstructions.
- ✓ Sturdiest crawler tractor heater built—made of heavy iron framework and heavy weather resistant canvas.
- ✓ Custom tailoring gives better fit—more efficient operation.



**WINDSHIELDS AVAILABLE**  
Optional at small extra cost.  
2 windshields can be used on  
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JANUARY, 1954

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Costs on  
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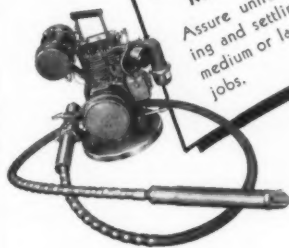
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HAMMER DRILLS**

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—deliver 3600 blows per  
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MASS - FORM**

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You can plan to cut time  
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**GASOLINE HAMMER  
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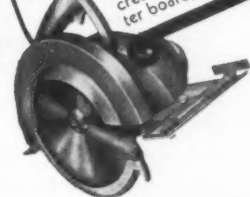
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**DUAL V-BELT DRIVE  
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Portable—heavy duty—for  
fast, easy cutting  
of wood, con-  
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**DIESEL PILE HAMMERS**

Entirely self-contained.  
Extra heavy-duty units that  
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Write for Complete  
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## High-Speed Crushing On Blacktop Project

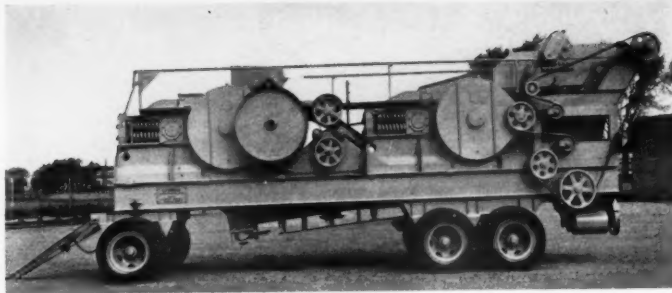
(Continued from preceding page)

applied by a 1,000-gallon Rosco pressure distributor.

### Asphalt Plant

A 2,500-pound Madsen asphalt plant was set up near the crushers. Accurate scales and a metering device measured the asphalt tonnages. Heat was supplied by a stationary steam boiler which used No. 6 fuel. A truck road was built under the pugmill discharge gates. For its main power, the plant used a Caterpillar D13000 engine with a D318 diesel on the 6 x 28-foot plant dryer. The cyclone dust collector was also powered by a D318.

The Sinclair refinery at Sinclair,



A closeup of the H. K. Imperial portable crusher used on the U. S. 30 highway job in Idaho.

Ray Day Photo

Wyo., furnished the 200 to 300-penetration asphaltic cement. Insulated Kenworth trucks transported the material, which arrived at flow temperature. Two horizontal tanks, heated by steam coils from the asphalt plant boiler, stored a total of 10,500 gallons. A single tank for fuel oil had a capacity of 8,000

gallons.

Aggregate was fed from storage piles to a primary feeder by a Caterpillar D8 and dozer, working from the top of the storage piles. A conveyor belt elevated the material from the feeder hopper to the plant dryer. A hot elevator raised it to the screen system, where it was classified and

dropped into weigh hoppers.

The asphaltic concrete was mixed with a three-bin separation. About 4 per cent of 200 to 300-penetration asphalt was added in the pugmill. Because of the warm weather, it wasn't necessary to cover the material, even when the trucks hauled over the extreme length of the project. Nine trucks, most of which were rented, were used on the long haul. The rented machines closely duplicated the 12 to 14-ton net payload per trip of the contractor's International L-190's.

### Paving

The batched material was laid by an Adnun Black Top Paver which spread a 12-foot strip at each pass. Paving started at the plant end and proceeded east, so that the batch trucks could use the finished portions of pavement as a haul road. The paver worked on one strip for a full day, returning to bring up the other strip the following day.

Rolling longitudinally by an 8-ton Galion tandem machine followed closely after the paver. Special attention was given to the center joint, to develop as high a density as possible at that point. Construction joints were cut square at the end of a day and butted up tight the next morning when work resumed. Considerable testing was done with carpenter levels to make certain the pavement was put down smoothly and true. Constant inspections checked density and surface texture. This was important, as rolling too soon tends to open up a pavement, while rolling too late retards compaction. Laboratory tests, coupled with the experience of the crew, decided upon the ideal time for rolling. Under normal conditions, the plant and paver averaged 100 tons of material per hour.

Final finishing consisted of an application of MC-5 asphalt, with a coating of minus 1/2-inch stone chips bedded into the seal with a roller. This is expected to act as a water seal, and will aid in traction and visibility.

### Personnel

All work on the job was under the general supervision of E. V. Miller, state highway engineer, with P. E. Oxley as construction engineer. The Pocatello district of the Idaho Department of Highways is headed by C. A. Kelly. A. D. Rounds was the resident engineer. He was temporarily assisted by Kurt Luerzer, northern Idaho plant-mix expert from the Coeur d'Alene area.

Field personnel for Carl Nelson included W. B. Phillips, job superintendent; N. E. Parson, general superintendent; and Jack Morgan, who was in charge of the hot plant.

THE END



Schramm 600-c.f.m., Diesel Engine Driven Compressor owned by the Gunite Concrete & Construction Co., of Kansas City, Mo., working at new Squaw Peak Filter Plant in Phoenix, Arizona, providing air for application of Gunite.

## Here's why you should use the SCHRAMM MODEL 600

**FUEL SAVINGS UP TO 50%** . . . Pneumastat control . . . Modern engine design . . . Proper operating speeds . . . Less horse power required by compressor . . . Super-efficiency compressor design.

**SIMPLIFIED DESIGN** . . . Fewer parts . . . Engine parts are interchangeable with compressor parts for lower maintenance . . . Cam operated mechanical intake valves provide greater efficiency.

**SAFETY FEATURES** . . . Electric push-button starter . . . Stronger, 400# test air receiver . . . Heavy grill for radiator protection . . . Easy accessibility to operating parts . . . No protruding parts.

**MORE PLUS FEATURES** . . . Tool boxes large enough to carry complete assortment of tools . . . Engine and Compressor cooled by water and unit can be operated with doors in place . . . Dual fan belts.

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# SCHRAMM AIR COMPRESSORS

A SIZE AND MODEL  
FOR EVERY AIR NEED

20-35



60



105



210



315



600





## WASHO Road Test

By the time the subgrade froze this winter, an estimated 140,000 axle loads had been applied to each test section at the Western Association of State Highway Officials Road Test in southeastern Idaho, according to the Highway Research Board, Washington, D. C.

The board has been conducting the tests for 11 western state highway departments, the Bureau of Public Roads, truck and trailer manufacturers, and certain petroleum companies—all of whom have contributed funds, equipment, personnel, or supplies to make the tests possible.

The test traffic has been applied at a rate about equal to that encountered on heavily traveled routes and much greater than that on main highways in most rural areas. As of November 1, 1953, over 115,000 heavy axle loads had been applied. The two test tracks were constructed during the summer of 1952.

When the subgrade froze, all operations (except for certain special studies and snow removal) were suspended. They will not be resumed until the frost begins to leave the roadway sections. Regular test loads will then be operated through the critical spring break-up period. No test loads were permitted on the pavement during the spring of 1953.

Test loads consist of 32,000 and 40,000-pound tandem axles and 18,000 and 22,400-pound single axles.

The test tracks, which were built at an estimated cost of \$650,000, consist of two practically identical loops with 1,900-foot straightways. One loop is for tandem axle vehicles and the other, for single axle vehicles. Each tangent has five different flexible pavement sections varying from 6 to 22 inches in total thickness of gravel and asphaltic concrete over the silt subgrade soil.

Since mid-July of last year, when some of the thin sections had been damaged, additional test traffic has caused very little visible distress. No distress had yet been observed on any of the thicker test sections as of November 1, 1953.

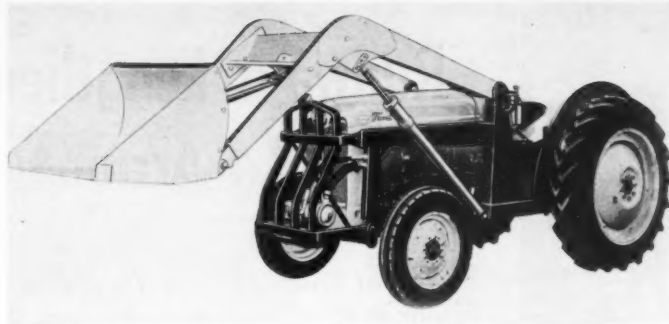
A comprehensive report covering the thousands of basic tests, as well as detailed descriptions of such things as the project, operations, and instrumentations was recently released by the Highway Research Board.

## Corbetta Adds Directors

To meet expanding operations of the company, the Corbetta Construction Co., Inc., New York City, has increased the number of its directors from three to eight. The firm currently has \$35,000,000 worth of construction under way.

Roger H. Corbetta continues as president and chairman of the board. Miss Thelma Weiss is treasurer; Louis Cobetta, secretary; Charles J. Prokop and Francis A. Vitolo are vice presidents. All are members of the Corbetta organization.

Other members of the board are Robert C. Vincent, of the law firm of Wilkie, Owen, Farr, Gallagher & Walton; George Freedman, of the accounting firm of Glick & Freedman; and T. Craig Carle, of Carle & Carle, insurance brokers.



The Davis hydraulic loader.

## Tractor-Loader Has Varied Attachments

■ A hydraulic front-end loader is being offered to the construction industry by Mid-Western Industries, Inc., 1009 S. West St., Wichita, Kans. The Davis loader features easy 4-

pin mounting. It is of box-frame construction with oil lines enclosed in the arms of the loader.

The manufacturer offers a series of attachments for the unit. The Davis Concrete Buster attachment is made by adding a chisel plate to the 200-pound hammer on the post-

driver attachment. The hammer travels at the rate of 40 to 50 strokes per minute to tear up concrete areas. Other attachments available, in addition to the material bucket, include an oversize utility bucket for snow and leaves, a dozer blade, and a crane.

For further information write to the company, or use the Request Card at page 18. Circle No. 643.

## New Member Joins BCPA

The Foote Construction Equipment Division of the Blaw-Knox Co., Nunda, N. Y., has become an associate member of the New York State Bituminous Concrete Producers Association, Box 667, Albany, N. Y.

One lever controls  
**8 FORWARD SPEEDS**

**TWO REVERSE SPEEDS**

**NO GEAR-SPLITTING!**

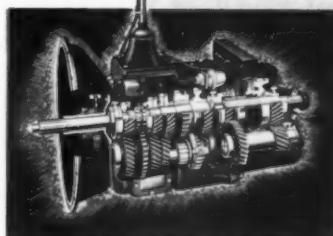
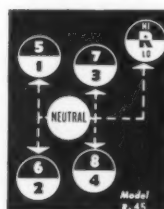
**New MODEL R-45 ROADRANGER**

**Now 125-160 hp rigs can have the advantages of the new R-45 ROADRANGER Transmission**

The famous one-stick Fuller ROADRANGER is now available for rigs powered by engines delivering up to 385 pounds-foot of torque.

With the new R-45, gear-splitting is entirely eliminated. Shifts are simple, short, and fast, with only one power shift in the whole series. Yet you have 8 forward speeds—available in equal, progressive, selective steps, none exceeding 38%—to keep your engine always turning in its most efficient range.

With this transmission, there's no more engine lugging, no more low rpm between shifts. With the Fuller ROADRANGER, you can haul more, and maintain higher average speeds than ever before—with so much better utilization of horsepower that you make 1/3 fewer shifts. Write today for full information on the new Fuller R-45 ROADRANGER.



## Check These Advantages:

- Easier, quicker shifts—38% steps—one shift lever controls all 8 forward speeds
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- Less driver fatigue—1/3 less shifting
- Range shifts pre-selected—automatic and synchronized
- More compact than other 8-speed transmissions
- More cargo can be carried on the payload axle.

## VITAL STATISTICS

GEAR RATIOS:			
Low Range		High Range	
1st . . . . .	9.78	5th . . . . .	2.66
2nd . . . . .	6.98	6th . . . . .	1.90
3rd . . . . .	4.99	7th . . . . .	1.36
4th . . . . .	3.68	8th . . . . .	1.00
Reverse . . . . .	11.01	Reverse . . . . .	2.99
Installation Length . . . . .	29 1/2"		
Clutch Housing Sizes . . . . .	SAE 1, 2, 3		
Weight, with Standard Controls . . . . .	457 lbs.		



**FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN**

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 641 E. 10th Street, Oakland 6, Calif.



A Blaw-Knox double-batch aggregate bin is simultaneously stacked with sand and stone. Sand is handled by a Koehring clamshell, while a Lorain clamshell (right) moves the stone.  
C. & E. Photo

## Runways Lengthened To Accommodate Jets

*Strip of Travis Field, Georgia, gets 1,400-foot addition; total of 40,000 square yards of concrete pavement is used*

ONE OF THE MAIN considerations of the National Guard's vigorous program of expansion is the extension of airport landing strips to accommodate jet aircraft. Travis Field,

near Savannah, Ga., recently had its east-west runway extended a quarter of a mile as part of this program.

Nello L. Teer Co., Inc., Durham, N. C., was prime contractor for the 1,400-foot concrete job. The concrete paving was subcontracted to Ballenger Paving Co., Inc., Greenville, S. C. The project was under the supervision of the Savannah district of the Corps of Engineers, U. S. Army.

Specifications called for a 150-foot-wide concrete runway with a parallel taxi strip—a total of 40,000 square yards of pavement. In cross section, the runway consists of 7 inch concrete with thicker portions at the longitudinal joints and along the edges. The top 6 inches of subgrade is aggregate stabilized at 95 per cent. Below that, the requirement was 90 per cent.

Each 75-foot-wide half of the runway slopes 1.5 per cent from the center-line crown. The two outer edges of the pavement are 10½ inches thick and taper in 12½ feet to 7 inches. At the longitudinal construction joints, the 7-inch slab thickens to 10½ inches in 3 feet.

### Joints

Transverse expansion joints are spaced every 275 feet, and dummy groove contraction joints, every 25 feet. Prefabricated material forms the ¾-inch-wide transverse and longitudinal expansion joints. Both are filled with a jet-resistant sealer. Load transfer dowels, 16 inches long and ¾ inch in diameter, are spaced 12 inches apart at the transverse joints. Keyways transfer the load across the longitudinal joints. Contraction joints consist of a ¾-inch-wide top groove 1¾ inches deep.

Nello Teer completed the grading work early in March, 1953, and Ballenger Paving Co. moved in soon after. The first job was to get the stabilized subgrade up to 95 per cent compaction. A disk harrow aerated the surface, and three pneumatic-tire rollers followed. When the

## New Dodge "Job-Rated" Trucks...



**New! Spectacular low-built lines** with pick-up and panel floors as low as 22½ inches from the ground... knee-high for loading ease! Lower running boards for easier entry! Lower hood for greater visibility!



**New! Great V-8's and thrifty 6's** including the most powerful V-8's of all leading trucks... with revolutionary hemispherical combustion chamber! Available in 1½-, 2-, 2½-ton... standard on 2¾-, 3, 3½-ton!

## with new low work-saving design...



**New Steering system** means easier handling... keeps Dodge ahead of the field with sharpest turning of any comparable trucks. More slant to steering wheel post. New power steering available in 4-ton models!



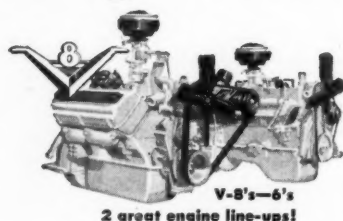
**New! Full-vision luxury cabs** with big one-piece windshield! More vision area than in any other leading make! New easy-chair seats! New cab sealing against dust, drafts! New two-tone interior styling!

## help reduce your trucking costs!

**New! Over 75 features!** New, low, work-saving, time-saving design! New payload increases! New cab heating and ventilation! New styling from road to roof! New value leader models! New shorter conventional tractors, only 102 inches from front bumper to rear of the cab. New easy-shifting transmissions!

**Free book on power!** Explains the 3 basic kinds of engine efficiency... tells what they mean to you in power and economy! Get your free copy at your friendly Dodge dealer's! See him today!

**New! Even greater values...yet still priced with the lowest!**



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## NEW DODGE "Job-Rated" TRUCKS

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**RICE**

Engine belt and electric driven pumps with many new features to give you outstanding performance at low cost. A.G.C. rated. Write for special bulletins.

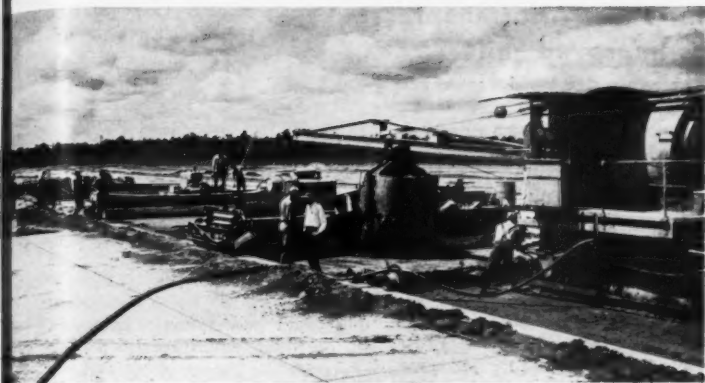


**RICE PUMP & MACHINE CO.**

220 N. Park Avenue, Belgium, Wisconsin

CONTRACTORS AND ENGINEERS





required compaction had been achieved, a Caterpillar No. 12 grader shaped the subgrade. Fine-grading was done with a grade log pulled by an International TD-14.

About 2,000 feet of Heltzel 9-inch forms were required to keep ahead of the paving spread. Ballenger used a Chicago-Pneumatic air hammer to drive form pins.

#### Batch Plant

The batch plant was set up along a railroad siding about a mile from the runway. Aggregates were batched in a Blaw-Knox three-compartment bin. A Koehring crane stocked the two sand compartments and a Lorain crane stocked the stone. Bulk cement was batched in a 400-barrel Blaw-Knox cement silo. About 13 International two-batch trucks made the fast haul to the paver over an old concrete taxiway.

The paving spread consisted of a Koehring 34E dual-drum paver, a Blaw-Knox spreader, a Jaeger-Lakewood transverse finisher, and a Koehring longitudinal screed. Concrete was mixed for one minute in the paver, dumped into the bucket, and distributed in front of the spreader when the paver was in the grade. A grade log was dragged behind the paver to scrape off any high spots. Joints were cut in by a Heltzel Flex-Plane machine that followed behind the longitudinal screed.

R. S. Woodlief was superintendent for Ballenger Paving Co., and N. J. Bleckmann was project engineer for the Corps of Engineers.

THE END

#### Kuljian Names Levonian

H. H. Levonian has been appointed vice president in charge of construction for The Kuljian Corp., Philadelphia, Pa., engineers and contractors. He has had 24 years of experience in the engineering and building of power and chemical processing plants in this country and abroad.



#### Jobs Done Quicker, Cheaper

Attached to Tractors, Bulldozers, Motor Graders and Scrapers, the Automatic Slope-Meters are in use on the construction of highways, airports, dams and building sites. Slope-Meters are compact, sturdily constructed instruments that will automatically show the operator the exact grade or slope on which he is working.

Order from Your Equipment Distributor Today

THE SLOPE-METER CO. EXCELSIOR, MINN.

JANUARY, 1954

Koehring 34E dual-drum paver dumps a batch of concrete in front of the Blaw-Knox spreader at Travis Field. The rest of the finishing equipment used on the project follows behind.

C. & E. Photo

#### CSC Exam for Engineer

An examination for engineer (various options) for filling positions paying from \$3,410 to \$10,800 a year in various Federal agencies in Washington, D. C., and vicinity has been announced by the U. S. Civil Service Commission, Washington 25, D. C.

To qualify for these positions, applicants must show appropriate education or experience in the field of work for which application is made; no written test will be given. Full details concerning the requirements to be met are given in civil service examination announcement No. 383.

For further information, including instructions on where to send applications, consult the examination announcement. Information on examinations may be obtained from

most post offices or from the U. S. Civil Service Commission.

#### Turnpike Conference

A conference to cooperate with all federal, state, municipal, and civic turnpike bodies in Ohio and the southern states for the completion of a north-south turnpike from Lake Erie to the Gulf of Mexico via Cincinnati has been formed.

The Lake Erie to Gulf of Mexico Turnpike Conference has headquarters at 705 Mercantile Library Bldg., Cincinnati, Ohio. William J. Reardon, author of papers on cement, concrete, and the legal problems of the building industry, and president of Reardon Industries, Inc., and the Insulators Supply Co., both of Cincinnati, is the acting chairman of the conference.

## It's Barnes Again

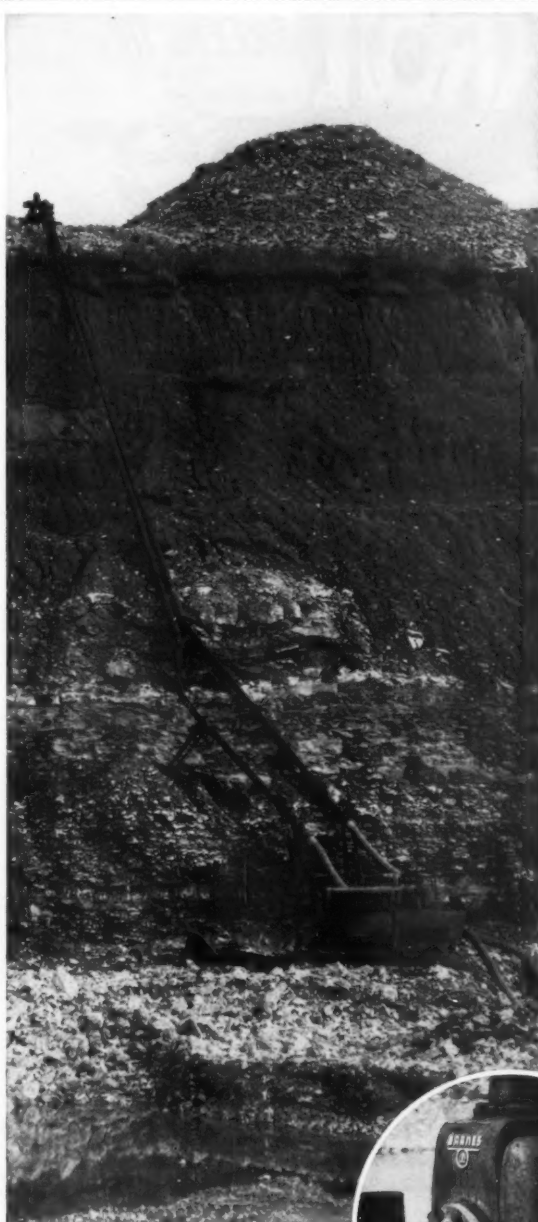
### ON ANOTHER TOUGH ONE!

#### PUMPING 36,000 G.P.H. AT 130 FEET OF HEAD

Here is really a tough one! With the discharge lines running straight up for 100 feet and then taking off at an angle for 20 more feet—these two Barnes 90M Self-Priming Centrifugal Pumps are doing an outstanding job of controlling the water level in this gypsum quarry of the Celotex Corporation at Port Clinton, Ohio.

To make the job even tougher, the water is high in sulphur content and laden with grit and silt. Yet these Barnes pumps have been on the job day-in-and-day-out—one pump for 7 years—the other for 3 years. Maintenance has been practically nothing—only to shim the impeller of one pump to bring it within recommended clearances.

So it's Barnes again on another tough one. And if Barnes is tops on the tough jobs—think what a buy they are for the every day, ordinary de-watering jobs.



The Barnes Line of Self-Priming Centrifugals ranges in suction and discharge sizes from 1-in. to 6-in.—with capacities from 2,000 to 90,000 G.P.H. Choice of Gasoline, Diesel, Electric or Pulley Drives.



★ ★ ★ BUY THE BEST...BUY BARNES ★ ★ ★



The driver of this light tractor can shift the Shawnee rear blade from his seat. ►

### Rear-Blade Attachment Has Improved Shift

■ A recently developed suspension arrangement makes it possible to switch the position of the Shawnee rear blade for light tractors without leaving the driver's seat. The blade can be extended to either side of the tractor with the blade angle to the right or left.

By manually positioning the blade, it can be extended three feet beyond the wheels on either side of the tractor. The Model 200 blade is reversible for back blading and can also be tilted to dig V drainage ditches.

For further information write to

the Shawnee Mfg. Co., 1947 N. Topeka Ave., Topeka, Kans., or use the Request Card at page 18. Circle No. 542.

### Mobile-Radio Device Aids Communication

■ Mobile radio systems can be put on a direct-call basis by the addition of a Lectrolab Mfg. Co. control unit to each of the receivers and the installation of an automatic coding unit in the base-station transmitter. In operation, the Electrocall unit energizes the output circuits of the receivers upon receipt of the coded signal from the transmitter. This gives vehicle operators the advantage of not being required to listen to all transmissions in the frequency band.

A further advantage is a reduction of battery drain per vehicle of approximately 14 per cent. Contained in a housing 2½ x 3 x 7 inches, the new unit is designed to fit on any make of radio equipment.

For further information write to the Lectrolab Mfg. Co., 2979-B Middlefield Road, Palo Alto, Calif., or use the Request Card at page 18. Circle No. 626.

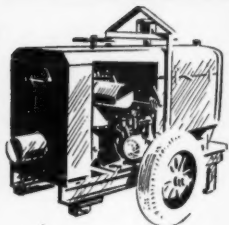
### Pressure-Type Coupling

■ A pressure-type coupling for plain or beveled-end pipe is illustrated in literature from the Victaulic Company of America, P. O. Box 509, Elizabeth, N. J. The Roust-A-Bout couplings feature gripping elements, or teeth, that hold the pipe together. An inclined grip and a bearing surface act like a tubing or pipe slip to give a strong circumferential hold on the pipe.

The literature gives installation details. The couplings are available in eight pipe sizes ranging from 2 to 8 inches.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 600.

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WELLPOINT PUMP  
RUNS **MORE** HOURS  
ON **LESS** FUEL  
(it's a "Complete" of course)



Who else but "Complete" could create a wellpoint pump that is such a giant in capacity (up to 1200 gpm) and such a miser on fuel. Who else but "Complete" equips this 6" suction and discharge unit with this amazingly economical diesel engine! Who but "Complete" would engineer the "Little Giant" Wellpoint Pump with everything needed for long, successful operation—beginning with special vacuum pump priming from an air separation chamber! Who but "Complete" could make it so easy for you to get this pump—when you want it—on a sell or rent basis! Want highest efficiency? Want great capacity? Want fuel economy? Then you want this "Complete" Little Giant Wellpoint Pump. Get the facts. Write today.

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"On a 25-year-old Bessemer gas engine, two bolts twisted off before . . . after using Kroil, they all came out easily."

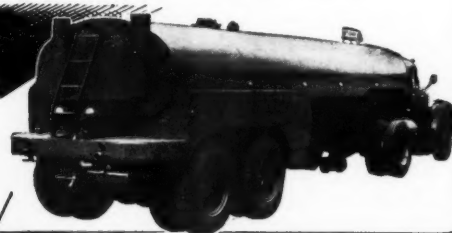
"Before trying Kroil on heat treat trolleys we broke off every nut . . . since then, we have not lost one."

You too can get these results. Try KROIL on money-back basis. Gallon, \$3.85; with Kroil squirt gun, \$4.95, f. o. b. factory.

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Nashville 11, Tennessee

*Supply Tanks* FOR  
HAULING  
HOT OR COLD BITUMINOUS  
MATERIALS



Semi-Trailer models are made by the famous Littleford Frameless Construction — no trailer frame is needed.



The Littleford Supply Tank transfers its Bituminous Material to the Bituminous Distributor for fast economical spraying.

To keep the Spraying Units on the job the Littleford Supply Tanks haul the Bituminous materials from the source of supply without interruption. These Supply Tanks are the backbone of all road construction and maintenance jobs. Made with or without heating units or transfer pumps, these units speed up the work, are economical to operate and save labor costs. Made in semi-trailer or truck mounted models in sizes ranging from 2000 to 5000 gal. Semi-Trailers, made without the use of a trailer frame, are known as the "Littleford Frameless Constructed Supply Tank". Make your next road job a low cost modern undertaking, use modern methods and modern equipment, Littleford Supply Tanks.

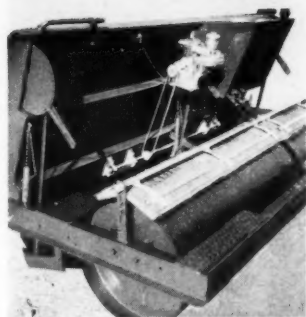


**LITTLEFORD**

LITTLEFORD BROS., INC.  
485 E. Pearl St., Cincinnati 2, Ohio

CONTRACTORS AND ENGINEERS





The Overman spreader lays stone, shale base, and hot or cold asphalt mix. With a new dual vibrator that makes for a uniform-mix feed to the screed plate, the machine is said to lay a level compacted surface free of waves. Three springs hold the screed plate in proper alignment. The spreader can be towed from job to job at any road speed. For further information write to the I. J. Overman Mfg. Co., 3301 S. Torrance St., Marion, Ind., or use the Request Card at page 18. Circle No. 522.

### Liquid Concrete Hardener

■ A liquid that combines with portland cement in concrete to form a hard surface is discussed in literature from Spray-O-Bond, 2225 N. Humboldt, Milwaukee 12, Wis. In addition to hardening the surface of concrete and terrazzo floors, Forrer's liquid concrete hardener is said to stop dusting and to arrest disintegration.

Surfaces treated with the hardener are resistant to oils, sulphate salts, silage juices, lactic acids, gasoline, naphtha, and kerosene. The hardener is recommended for use on all types of concrete floors, platforms, runways, and stairs. It can be applied to old as well as new concrete, and no special equipment or skill is required.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 632.

### Oil-Fired Heater

■ A portable oil-fired heater that operates on kerosene or No. 1 fuel oil is made by the Cauhorn Distributing Co., 9999 Broadstreet, Detroit 4, Mich. The Edco heater is designed to supply heat to men working in exposed or partially exposed places. It is self-contained and can be rolled on its own wheels by one man. The heater produces up to 190,000 Btu per hour.

According to the distributor, no installation vent, flue, or chimney is required since combustion is complete. The heater plugs into any 110-115-volt ac electric outlet. A blower on the top of the heater draws air into the unit, forces it down and



over a heat exchanger, and blows it out over openings in three of the lower sides.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 573.

### Turner Purchases Ferro

The Turner Construction Co., 420 Lexington Ave., New York 17, N. Y., has acquired an important financial interest in The Ferro Concrete Construction Co., Cincinnati, Ohio. H. D. Loring, president, is expected to remain at Ferro, along with other key personnel. No changes in Ferro policy are contemplated because of the move.

## WILLIAMS FOUNDATION TYPE HOLE DIGGERS

The Williams MDH Foundation Type Hole Digger is a big, fast, rugged machine designed specifically for foundation pier hole drilling and under-reaming. Powered by a 400 cubic inch class engine, the MDH has six forward auger speeds and two reverse. Under ideal conditions the ultimate performance range is as specified above.

The digger's kelly bar has two vertical speeds independent of the auger's rotation speed. The high speed of about 175 f.p.m. is for normal digging and lifting loads from the hole. The slow speed of about 15 f.p.m. is used when drilling hard formations.



Powered by 400 cubic inch class engine for specified hole depths up to 40 feet and in diameters up to 72 inches. Phone, write or wire for information

**HUGH B. WILLIAMS MFG. CO.**

8330 Lovett St. • Dallas, Texas

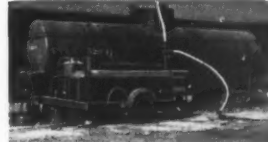
## GRACE Asphalt and Compaction Equipment



3 sweeper models, axle, engine or tractor powered.



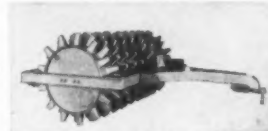
Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.



Rapid Fire circulating heaters heat and unload large tanks of asphalt.



Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Sheepfoot Rollers 250 to 600 psi.



Pneumatic rollers 7 to 50 tons.

**W. E. GRACE MFG. CO.**

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Dallas, Texas

GET FAST DUAL PRIMING-  
DEPENDABLE LONG LIFE OPERATION-

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Completely New Dual Prime Pump Line Featuring

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**CONSTRUCTION MACHINERY COMPANY • WATERLOO, IOWA**

4M-1½"

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30M & 40M-4"



A Lima 604 pull-shovel digs a wide trench for two sewer pipes. The 18-inch line at the left is a storm drain, and the 10-inch line is a sanitary sewer.

C. & E. Photo

## Groundwork Finished For Michigan School

GRADING for a new high school in Ann Arbor, Mich., included cuts up to 19 feet deep and fills as high as 18 feet, with a total of 350,000 cubic yards of earthwork. The clearing, grubbing, and grading of the site; the installation of storm and sanitary sewers for the main structure; the excavations for basements and footings; and the pouring of the concrete substructures were completed last October. The balance of the work is slated to get under way this spring.

The school is going up at the edge of Ann Arbor on a 1,120 x 2,200-foot tract of land (almost 60 acres). About two-thirds of the area was open pasture and crop land. The rest was dense forest composed of mixed hardwoods up to 20 inches in diameter.

The main building will be in an L shape. The east-west leg is to be 870 feet long, and the north-south leg will be 700 feet long. An auditorium and gymnasium attached to one of the legs will measure approximately 380 x 180 feet. A series of footings and walls will support the main building, which will have more of a crawl space than a basement. Concrete footings and walls, as well as the first floor for the auditorium and gymnasium, are part of the work already completed.

General contractor for the finished phase of the job was the Henry De

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CONTRACTORS AND ENGINEERS



**Cuts up to 19 feet and fills up to 18 feet are included in 350,000 cubic yards of earthwork for school**

Koning Construction Co., Ann Arbor. The Johnson-Greene Co., Ann Arbor, took care of the site grading and excavation; Page Plumbing & Heating Co., Inc., Detroit, Mich., installed the underground sewer and water services.

#### Site Clearing

With three Homelite one-man chain saws and a Mall two-man saw, Johnson-Greene made quick work of cutting the heavy hardwood timber from the 18-acre wooded area. Saw logs, piling, and posts were salvaged, and all brush, stumps, and trimmings were burned at the site. The lumber was cut into timber by a privately owned sawmill which was brought in.

Meanwhile, four Caterpillar D8 tractors with LeTourneau Model FP scrapers started the grading and excavations on the open land. The yellow-to-bluish clay soil was placed in the fills in one-foot layers and compacted by the movement of tractors and scrapers over it. All topsoil from the graded areas was stripped and stockpiled for use in the finish grading upon completion of the building.

#### Pull Shovels Dig Footings

Two Northwest Pullshovels, a ¾-yard and a 1½-yard, excavated for the footings. The holes were trimmed to line and grade with air

spades powered by a Worthington 105 compressor, and were formed on one side only. Some wall footings were excavated by a Buckeye trencher, trimmed with the air

(Concluded on next page)



A Caterpillar D8 tractor with Fleco Root-Rake grubs out brush and small stumps, shakes out the dirt, and piles the waste for burning.

C. & E. Photo

## AFTER ORDINARY METHODS FAILED . . .



Equipment being recovered after having been buried for over a year.

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Further information or descriptive literature can be secured from any advertisers in this issue of CONTRACTORS AND ENGINEERS. Just write name of manufacturer and product of interest to you on the extra line provided on the post card facing page 18 fill in your own name and industry connection, mail to us and we'll do the rest.

### CONTRACTORS AND ENGINEERS

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Repeated salvage efforts by ordinary methods being of no avail . . .

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## Groundwork Finished For Michigan School

(Continued from preceding page)

spades, and poured without forming. About midway through the work, four Super C Tournapulls and three Tournapull C Roadsters with a Caterpillar D8 pusher were added to the excavating fleet. These machines operated on the long hauls, which sometimes exceeded 2,000 feet.

Walls for the basement, as well as some footing and retaining walls, were formed with Economy steel forms. Gymnasium floor forms were made of plywood supported by joists and shores. Concrete was supplied to the job by the Ann Arbor Construction Co. and the Killins Gravel Co. Footings and low walls were poured directly from the truck mix-

ers, where possible. Otherwise, ½-yard Scoot-Cretes hauled from the trucks to the forms. The higher walls were poured by a Northwest Model 25 crane with a one-yard bottom-dump bucket.

For the gymnasium floor, the concrete was bucketed by the crane to a hopper at floor level. It was wheeled to the forms in Insley rubber-tire buggies. About 4,000 cubic yards of concrete was placed.

### Sewer Construction

Storm and sanitary sewers were laid in the same trench. A 1½-yard Lima 604 pull shovel dug the trench wide enough to lay the 18-inch vitrified clay storm drain line and the 10-inch sanitary sewer side by side.

Another piping job was the installation of 9,500 linear feet of 6-

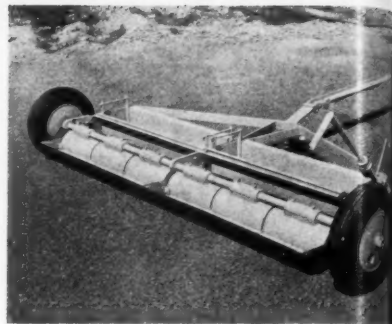
inch drain tile to drain footing areas. A 54-inch reinforced-concrete pipeline was laid diagonally across the tract, covering a natural channel which was filled in during the grading operations.

An athletic field will be among the phases of the project started this spring. It will measure 1,400 x 2,400 feet and will involve 150,000 cubic yards of earthwork, 7,200 linear feet of field under-drains, and 5,000 linear feet of storm and sanitary sewers.

### Personnel

Ferdinand Otto served as general superintendent for the general contractor. William Lick supervised the clearing and grading operations for Johnson-Greene. Jonas Otto was superintendent for Page Plumbing & Heating.

THE END



The Cesco magnetic road sweeper.

### Magnetic Road Sweeper

A nonelectric magnetic road sweeper is offered by Cesco, Santa Rosa, Calif. The sweeper, with its set of Alnico magnets removes nails, wire, and other ferrous hazards to rubber-tired traffic on roads and air-ports.

The sweeper includes stainless-steel magnetic-plate covers that dump collected tramp iron into the built-in retainer pans. This is accomplished by a manually operated worm gear that rotates the magnets to the discharge position. The covers are then swung upward to release their loads into the retainer pans. The hitch of the sweeper is designed for attachment to a jeep, tractor, or any other vehicle that will pull it over the area to be swept.

For further information write to the company, or use the Request Card at page 18. Circle No. 589.

### Oliver Acquires Be-Ge

The outstanding capital stock of the Be-Ge Mfg. Co., Gilroy, Calif., manufacturer of scrapers, hydraulic control units and cylinders, land-levelers, and trenchers, has been acquired by the Oliver Corp., 400 W. Madison St., Chicago 6, Ill. Be-Ge will operate as an Oliver subsidiary under the direction of its present management. Albert Gurries is president.

### Reinforced Sewer Pipe With Special Joint

A special-type joint used on pressure pipe is now available on reinforced sewer pipe manufactured by the Universal Concrete Pipe Co., 297 S. High St., Columbus, Ohio. The Armored Joint pipe combines steel joint rings and long-lasting rubber gaskets that protect against leakage or infiltration.

The rings, embedded in the concrete pipe wall, are welded to the pipe's steel reinforcement. The rubber gasket is seated in a special groove in one ring so that it is confined and protected. The complete joint is said to provide ample flexibility to allow for normal contraction, expansion, and deflection.

The manufacturer points out that the long length of the pipe speeds and simplifies installation. The pipe can be made to conform to any standard specification for reinforced concrete pipe.

For further information write to the company, or use the Request Card at page 18. Circle No. 560.



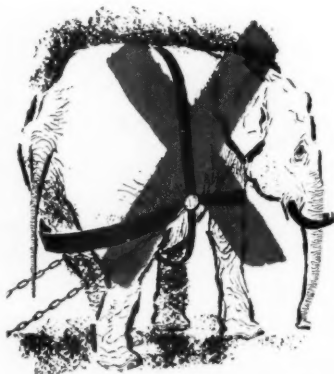
Applying bitumen through 2 feet of spraybar as shown may not appear unusual or different, but when the operator can use any length—from 1 to 24 feet—without changing the pressure and without any application adjustment whatever . . . then there's a difference. It's Rosco's Pressure Metering Method that makes that difference.

The P. M. method of applying bitumen is not metered by the bituminous pump, nor is the amount of discharge measured in relation to the pump revolutions. Normal wear of the pump and occasional, unavoidable nozzle clogging never affect the application rate. Here again, Pressure Metering makes the difference . . . the rate is automatically maintained by Rosco's P. M. system.

It is this Pressure Metering Master Valve, the "heart" of Rosco Distributors, that gives you this built-in control of pressure which is the only accurate method of obtaining precise bituminous application. This is the valve that also directs the flow of material for all of the Rosco Distributor functions.

Make the difference pay off. Let your Rosco dealer show you how. Write the factory for descriptive bulletins with specifications of Distributors with P. M.

**ROSCO MANUFACTURING CO.**  
3118 Snelling Ave. • Minneapolis 6, Minn.

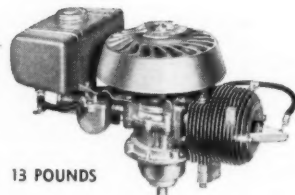


### The POWER PRODUCTS Lightweight packs more power per pound

When it comes to lightweight power nothing can touch this engine. Not only is it amazingly lightweight, but it has every important quality feature to assure long, dependable performance.



For portable equipment, you can't find a better engine for lightweight and dependability.



13 POUNDS

**be modern—  
go Lightweight**

- LIGHTWEIGHT
- MINIMUM EFFORT STARTING
- LONG LIFE, LESS MAINTENANCE
- FULL CARBURETION
- BALL BEARING MAIN BEARINGS
- SEALED DRIP PROOF CRANKCASE
- FULLY ENCLOSED FLY-BALL GOVERNOR
- NO OIL CHANGING OR CHECKING
- CLOG FREE COOLING SYSTEM

**be modern—  
go Lightweight**

**POWER PRODUCTS CORPORATION**  
GRAFTON, WISCONSIN  
CONTRACTORS AND ENGINEERS





### Asphalt Mixing Plant Has 6,000-Lb. Capacity

■ A new batch-type bituminous mixing plant has been announced by the Iowa Mfg. Co., 916 N. 16th St., Cedar Rapids, Iowa. The new Model G-60 is the largest bituminous mixing plant in the Cedarapids line, redesigned from the Model E plant but with 50 per cent greater capacity. Its 65-cubic-foot aggregate batcher and 60-cubic-foot mixing unit permit capacities ranging from 5,000 to 6,500 pounds per batch, depending upon aggregate weight per cubic foot, percentage of asphalt, screening conditions, and plant dryer capacity.

The plant may be operated manually or semiautomatically with full pneumatic controls, or batching and control equipment may be completely automatic and controlled electronically. An electric time and sequence locking system controls mixing time periods, bitumen batcher gates, aggregate batcher gates, and discharge gate of the mixing unit. Signal lights assure accurate in-

formation on each phase of the cycle, and the operator has an unobstructed view of the discharge gate at all times. The closely controlled batching makes it possible to change the type of specification mix with practically no delay, the manufacturer points out. Several types of mixes may be run the same day without loss of production and with no loss of time for operational change-over.

To reduce maintenance costs, the Model G-60 is designed with heavy steel tower columns that eliminate vibration. Antifriction bearings for the hot elevator are mounted on the outside of the enclosure for maximum bearing life. Paddles and liners in the mixing unit are made of special wear-resisting steel. Easy access for lubrication and adjustments is another feature, and the plant is said to be exceptionally free from heat and dust.

The base unit of the G-60 bituminous mixing plant consists of the tower structure, a totally enclosed

hot elevator, a Cedarapids Model S 48-inch x 14-foot double-deck horizontal vibrating screen enclosed in a sheet-metal dust housing, and a 29-cubic-yard 4-compartment storage bin with overflow chute from each compartment and reject chute for oversize material. A 60-cubic-foot twin-shaft mixer, a 65-cubic-foot aggregate batcher, a bitumen batcher, a bitumen pump unit, and complete pneumatic controls with compressor are also part of the base unit.

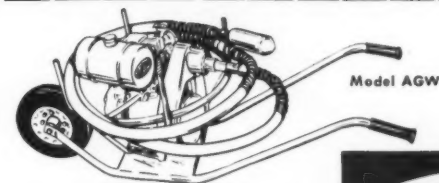
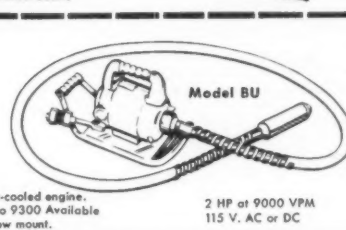
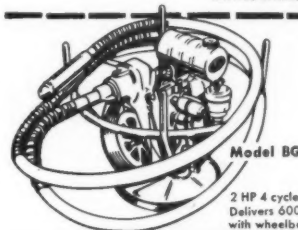
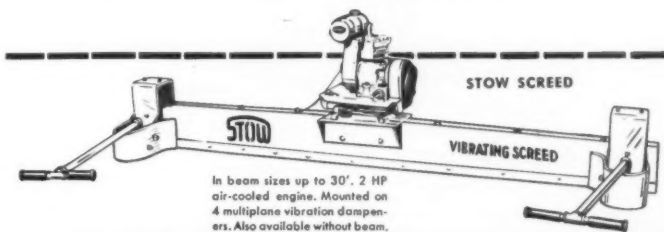
Optional equipment includes electronic control equipment for automatic weighing and mixing-unit operations, time locking equipment, mineral filler attachment, an extension for the hot elevator, and an extension for the hot storage bin to increase bin capacity to 47 cubic yards.

The plant may be driven by combustion engine from one central power unit, and power is transmitted to various units by means of chain, V-belt, and other mechanical drives. The all-electric plant has individual motors on each of the various units.

For portable applications, the mixing unit and screen-batcher unit are equipped with running gear and with self-contained powered equipment to erect the tower structure and elevate the component units into operating position without the need of a crane. For stationary applications, the units are furnished without the hinged tower structure column bases, running gear, or power erecting equipment.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 644.

## Concrete facts about Concrete Vibrators and Screeds



Here is the name you want!

The high operating speeds of the new STOW line of Concrete Vibrators make possible the use of heavy duty, light weight flexible shafting and lighter, more efficient vibrator heads—which speed operations, cut costs. And, STOW design provides convenient, practical speed control so attachments may be used directly on the vibrator shafts.

STOW SCREEDS—permit placing more than 300 cu. yds. in less than 8 hours; strike off and impact in one operation; leave surfaces true to grade; work up to and around man-hole covers and obstructions.

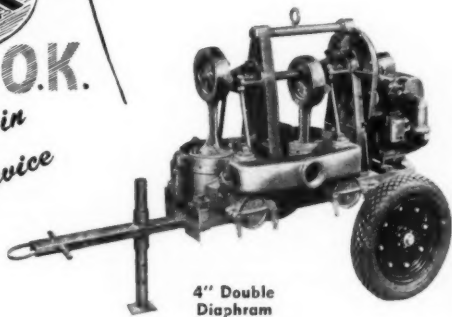
See us at the AED meeting in New York and see your STOW distributor about STOW vibrators and screeds today. Send for free Bulletin 526.



STOW MANUFACTURING COMPANY  
40 Shear Street Binghamton, New York

50 years NOVO stamp of approval

NOVO Diaphragm Pumps  
Standard of Performance



NOVO ENGINE CO. LANSING MICHIGAN

## Improved Truck Line Features New Engines

■ Three new engines with increased horsepower, automatic transmissions optional through the 1-ton range, and increased chassis durability are features of the new 1954 Chevrolet truck line. There are heavier axle shafts in the 2-ton models, bigger clutches on light and heavy-duty models, and more rigid frames on all units.

Optional three-speed transmissions, available on light and medium-duty models, offer greater gear reduction. A steering-column gear-shift lever is found on 1-ton models. In addition, the body height of the pickup, platform, and stake models has been lowered through



The stake bodies in the 1954 Chevrolet truck line have greater loading space and lower platform height.

modified mountings to give more space for payloads and easier loading. Unobstructed loading space has been lengthened on several models. Improvements are reported in the

new Thriftmaster and Loadmaster truck engines. An increased compression ratio of 7.5:1 provides greater economy and 112 hp, with a higher top speed, faster accelera-

tion, and improved hill-climbing ability. The Jobmaster engine, called the most powerful truck engine in Chevrolet history, is offered as optional equipment for heavy-duty models. In this 135-hp unit, the need for operation in low gear is said to be reduced, producing longer engine life and economy.

The seat and back on the new models are built as a unit so that the back moves up and down in unison with the seat cushion. The trucks, available in a choice of 12 colors, have been improved in external appearance with a more massive radiator grille and front-end design. A one-piece curved windshield increases visibility and safety.

For further information write to the Chevrolet Division, General Motors Bldg., Detroit 2, Mich., or use the Request Card at page 18. Circle No. 562.

More footage per day...  
More footage per blade...  
**LOWER COST PER CUT!**

### Felker DI-MET MODEL 252

The heavy duty  
CONCRETE CUTTER  
that pushes itself!



**CUTS MORE CONCRETE PER DAY BECAUSE  
THE MODEL 252 IS SELF-PROPELLED! OVERCOMES  
OPERATOR FATIGUE, ELIMINATES FREQUENT REST  
PERIODS, COVERS FAR MORE FOOTAGE IN A DAY!**

- ★ **LONGER BLADE LIFE**—No sudden bumps and jolts to add unnecessary wear and tear on the diamond wheel. Smooth, uniform POWER FEED adds longer blade life—CUTS COSTS! Actual field reports have shown blade life as much as doubled.
- ★ **DEEP CUTS**—approximately 7" maximum with 18" blade. 13.5 h.p. engine furnishes power to spare.
- ★ **DOUBLE END SPINDLE** for right or left hand cutting.
- ★ **HINGED BLADE GUARDS**—Front half lifts, exposing blade for close-up work.

Ask your Felker DI-MET Representative for recommendations.

## 1924-1954

**WORLD'S LARGEST AND OLDEST  
MANUFACTURER OF DIAMOND ABRASIVE  
CUT-OFF WHEELS AND MACHINES.**

Celebrating our 30th Anniversary!

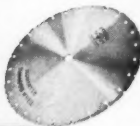
1954 commemorates Felker's 30th consecutive year of diamond abrasive wheel development and manufacture. You benefit from this unmatched experience when you specify Felker Di-Met!

**Use DI-MET Machines and Blades for  
every concrete cutting requirement!**

Here's an unusual  
application—sawing  
up and re-locating  
a concrete wall!  
Savings: \$241.00 on  
a \$991.00 job!



Felker DI-MET the SEGMENTED type diamond blade with peak performance! Built by the only manufacturer making both concrete cutters and diamond wheels. Bond variations for every cutting requirement insure more footage—lower cost per cut!



**FELKER MANUFACTURING CO.**  
TORRANCE • CALIFORNIA

## CONTRACTORS AND ENGINEERS

"Where To Purchase  
Guide"  
is now available.

If you wish a copy of this pocket-size booklet of names and addresses of manufacturers and suppliers of hundreds of construction products, circle No. 680 on the reply card to be found in this issue facing page 18 and mail card to

## CONTRACTORS AND ENGINEERS

470 Fourth Avenue  
New York 16, N. Y.

# SANSTORM IT!

**blast your cleaning costs**



More and more construction companies are cleaning steel fabrications, masonry, forms, equipment cheaper and quicker with Sanstorms—the sandblasting machines unequalled for low cost service.

Because Sanstorms are non-plug with any abrasive the job requires—gentle to smooth off or tough to skim off heavy scale—you get trouble-free performance with a Sanstorm.

Write today for **FREE** literature. Add any questions about your cleaning problems for Sanstorm recommendations without cost or obligation.

**SANSTORM**  
MANUFACTURING COMPANY

P. O. BOX 1173 FRESNO, CALIFORNIA



## Scaffolding Device

■ A new device for making scaffolding quickly is available from the Superior Scaffold Co., 5624 Bankfield Ave., Culver City, Calif. The device consists of a cross bar and two grip arms that fit around the scaffolding upright. The manufacturer states that the Superior Sliding Ledger may be used on structures as high as three or four stories by slipping the required number of ledgers on finished 2x4 uprights. These ledgers may be moved to any height desired after the scaffold is erected.

For further information write to the company, or use the Request Card at page 18. Circle No. 628.

## Choosing Crane-Excavators

■ A handbook written to aid in the selection of the proper crane-excavator for a given job is available from the Wayne Crane Division of the American Steel Dredge Co., Inc., 2000 Taylor St., Fort Wayne, Ind. The booklet contains specific information on major crane design and construction fundamentals. Actual comparison charts are included.

The text points out that the proper selection of a crane-excavator depends on a great many factors. Among them are the type of materials to be moved, height of lift, distance to be moved, kind of ground surface, and location of the job.

To obtain this information write to the company, or use the Request Card at page 18. Circle No. 566.

## New Department Formed

The Colorado Fuel & Iron Corp., 575 Madison Ave., New York 22, N. Y., has organized a new department to coordinate and expand product research and development. A part of the executive department, it will have its headquarters in Washington, D. C., and will operate under the direction of Howard J. Davis, assistant to the firm's president.

In addition to his new duties, Mr. Davis will continue as the firm's Washington representative for all activities except sales.

CONTRACTORS AND ENGINEERS



## Device to Prevent Crane Boom Accidents

■ A device that automatically cuts off the power when the crane boom is raised too high is announced by the McCaffrey-Ruddock Tagline Corp., 2131 E. 25th St., Los Angeles 58, Calif. The Rud-o-Matic Thomas Boomstop prevents boom kinking and twisting without danger of shocks and strains to the mechanism. Two models are available: Model 5000 for cranes up to 20-ton capac-

ity, and Model 10000 for cranes from 20 to 100-ton capacity.

Dual spring-loaded rams, mounted on the A frame or gantry of the crane, provide a cushioning effect and arrest the boom movement when a load cuts loose and the boom whips back. The rams prevent the boom from being raised too high.

Two vacuum valves operate the Boomstop clutch and master clutch. The valves are mounted at the base of the boom and connected through tee connections to the vacuum sup-

ply tank. A vacuum pump is used on diesel-powered cranes, and manifold pressure on gasoline-powered cranes.

In operation, valve No. 1 releases the boom friction and stops boom travel when the boom angle exceeds 85 to 88 degrees. Valve No. 2 is set for 90 degrees. If, through accident or carelessness the operator two-blocks the load line and pulls the boom back, valve No. 2 instantly actuates the master clutch, and the boom travel is safely stopped before

damage is done.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 572.

## Republic Rubber Elects

The Republic Rubber Division of Lee Rubber & Tire Corp., Youngstown 1, Ohio, has appointed Stanley L. Martin field engineer. A member of the division since 1952, Mr. Martin will make his headquarters in Houston, Texas.

## There is a GM Diesel Engine Distributor Near You

**ALABAMA**—Birmingham 1  
ARMSTRONG EQUIPMENT CO.

**ARIZONA**—Phoenix  
O'CONNELL BROTHERS, INC.

**ARKANSAS**—North Little Rock  
LEWIS-DIESEL ENGINE CO.

**CALIFORNIA**—Berkeley  
WEST COAST ENGINE & EQUIP. CO.  
Los Angeles 21  
ANDERSON-O'BRIEN CO.

**COLORADO**—Denver 9  
THE COLORADO BUILDERS' SUPPLY CO.  
(Equip. Div.)

**CONNECTICUT**—Hartford  
HOLMES-TALCOTT, INC.

**FLORIDA**—Jacksonville 2, Miami  
FLORIDA DIESEL ENGINE SALES

**GEORGIA**—Atlanta 2  
BLALOCK MACHINERY & EQUIPMENT CO.

**IDAHO**—Boise, Idaho Falls, Twin Falls  
SOUTHERN IDAHO EQUIPMENT CO.

**ILLINOIS**—Bellwood, Rockford, Rock Island  
D. D. KENNEDY, INC.  
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**INDIANA**—Lawrence, Ft. Wayne, Evansville  
FLESH-MILLER TRACTOR CO.

**IOWA**—Des Moines  
STEPHENS-JONES, INC.

**KANSAS**—Wichita, Great Bend  
DIESEL EQUIPMENT CO., INC.

**KENTUCKY**—Lexington 47, Louisville  
BOGIE EQUIPMENT COMPANY

**LOUISIANA**—Harvey  
GEORGE ENGINE CO., INC.  
Shreveport  
UNITED TOOL CO.

**MAINE**—Portland 3  
EASTERN TRACTOR & EQUIPMENT CO.

**MARYLAND**—Baltimore 30  
McCLUNG-LOGAN EQUIPMENT, INC.

**MASSACHUSETTS**—Burlington  
MORRISSEY BROTHERS TRACTOR CO.

**MICHIGAN**—Detroit 4, Grand Rapids  
THE EARLE EQUIPMENT CO.  
Iron River  
DROTT TRACTOR CO., INC.

**MINNESOTA**—St. Paul, Duluth  
BORCHERT-INGERSOLL, INC.

**MISSISSIPPI**—Jackson, Louisville  
TAYLOR MACHINE WORKS

**MISSOURI**—North Kansas City  
K C DIESEL POWER COMPANY  
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SEITZ MACHINERY CO., INC.  
Missoula, Kalispell  
MOUNTAIN TRACTOR COMPANY

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FEHRS TRACTOR & EQUIPMENT CO.

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SIERRA MACHINERY CO., INC.

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RAY C. CALL COMPANY

**OKLAHOMA**—Oklahoma City  
DIESEL POWER COMPANY

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GUNDERSON BROS. ENGINEERING CORP.

**PENNSYLVANIA**—Philadelphia 31  
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SIOUX ROAD EQUIPMENT, INC.

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Plainview  
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**UTAH**—Salt Lake City 4  
CATE EQUIPMENT CO., INC.

**VERMONT**—Barre  
HILL-MARTIN CORPORATION

**VIRGINIA**—Richmond 22  
BEMISS EQUIPMENT CORP.

**W. VIRGINIA**—So. Charleston  
So. Fairmont, Bluefield  
RAY C. CALL COMPANY

**WASHINGTON**—Seattle 9  
EVANS ENGINE & EQUIPMENT CO., INC.  
Seattle 4, Anchorage, Fairbanks  
YUKON EQUIPMENT CO., INC. (ALASKA)  
Spokane  
MODERN MACHINERY CO., INC.

**WISCONSIN**—Milwaukee 8, Rice Lake  
DROTT TRACTOR CO., INC.

**WYOMING**—Casper  
THE COLORADO BUILDERS' SUPPLY CO.  
(Equip. Div.)

GM DIESEL  
CASE HISTORY No. 639-51



**USER:** Geo. M. Brewster & Son, Inc., Bogota, N. J.

**INSTALLATION:** Four GM Diesel-powered Ingersoll-Rand Gyro-Flo 600 compressors supplying air for 9 I-R 71 wagon drills.

**PERFORMANCE:** "Completely satisfactory," says operator Tom Malone. Units shown were delivering air to the tools through 1200 to 1600 feet of line—maintaining steady pressure of 100 to 110 psi.

It pays to STANDARDIZE on



## 2400 CUBIC FEET OF AIR PER MINUTE ON NEW YORK THRUWAY ROCK CUT

Geo. M. Brewster & Son now operate a total of 18 General Motors Diesel-powered Gyro-Flo compressors, including this battery of four capable of supplying 2400 cubic feet of air per minute for rock drills on a section of the New York Thruway, near Kingston.

These modern rotary compressors take full advantage of GM Diesel's smoother-running 2-cycle operation to maintain a steady flow of nonpulsating air at 100 psi or better. And compactness of the GM 2-cycle design makes these units smaller and lighter for quick, easy movement from job to job.

This inherent engine design superiority—plus interchangeability of lower-cost parts, readily available through a world-wide GM Diesel service organization—explains why GM Diesel power is a favorite of contractors on so many jobs. Next time you order equipment, it will pay you to specify GM Diesel. Available as original or replacement power in more than 750 different models of equipment. Write us for complete list.

### DETROIT DIESEL ENGINE DIVISION

GENERAL MOTORS • DETROIT 28, MICHIGAN

Single Engines . . . 16 to 275 H.P. Multiple Units . . . Up to 840 H.P.



A Manitowoc crane drives an Armco Spiralweld pile shell to grade with a Vulcan hammer.  
Ray Day Photo

# Pile Driving in Bents On Bridge Job

Study Shows:

## Average Yearly Repair Bill \$19.61

PER ROLLER

On 26 BUFFALO-SPRINGFIELD 3-Wheelers  
Used By Large Eastern State.

Repair bills (materials and labor) were carefully logged on each of the 26 Buffalo-Springfield 3-Wheel Rollers used on all types of highway construction and maintenance in a large Eastern state. One of these rollers was in constant use for 12 years. Its total repair bill for the entire period was less than \$200. That's an average of \$16.39 per year! Only 4 rollers averaged over \$30 per year for repairs. (Highest was \$45.26 per year.)

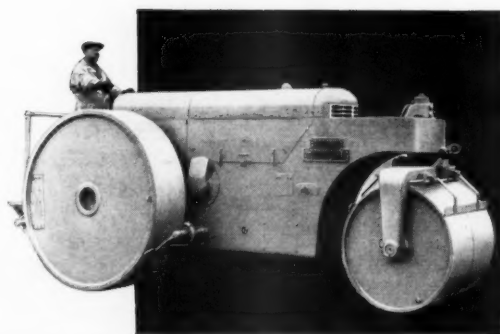
**The average yearly repair bill for all 26 Buffalo-Springfield Rollers used was only \$19.61 per roller.**

However, savings in repair bills are only a small part of the story. A key piece of equipment that breaks down can hold up an entire job, can cost tremendous sums in lost job-time, lost man-hours.

That's why you pay a little more to have Buffalo-Springfield high quality and fine engineered design. One breakdown that didn't happen can more than offset the higher initial cost.

Judge for yourself! How much did you pay for repairs last year? More than \$20 per roller? How much did down-time and lost man-hours cost you? How many jobs were delayed by equipment that failed? Study the record of these 26 Buffalo-Springfield Rollers and compare.

There's a Buffalo-Springfield Distributor conveniently located to serve you.



This is the Buffalo-Springfield 3-WHEEL ROLLER.

Heavy-duty engineered for continuous service on toughest jobs. Features that give you wide job versatility . . . Exclusive 4-speed transmission to provide a continuous range of roller speeds from 1.1 to 5.0 mph, all at full engine power. Machine-finished ballast-type rolls. High-speed, low-torque clutches for even, smooth reversing. Many more. Models for weights from 5 to 15 tons. Ask for Bulletin S-60-50.

Exact Repair Costs (Materials and Labor) for Each of the 26 Rollers:

ROLLER No.	YEARS ON THE JOB	TOTAL REPAIRS (MATERIAL & LABOR)	AVERAGE REPAIR COST PER YEAR
1	8	267.17	34.64
2	3	8.00	2.66
3	5	35.24	7.24
4	8	109.90	13.73
5	4	28.75	7.18
6	4	15.65	3.91
7	6	125.82	20.97
8	7	135.50	19.35
9	4	72.10	18.02
10	7	132.08	18.87
11	9	195.82	21.75
12	9	190.40	21.15
13	7	168.14	24.02
14	7	169.59	24.22
15	7	79.37	11.33
16	7	264.80	37.83
17	6	67.35	11.23
18	7	192.92	27.56
19	7	246.69	35.24
20	7	147.04	21.00
21	8	134.59	16.74
22	5	20.43	4.08
23	7	181.12	27.88
24	7	118.50	16.65
25	7	316.88	45.26
26	12	196.79	16.39

175\*

\$509.90  
or \$19.61 per roller

\* Average almost 7 years on the job per roller.

See your distributor for complete information or write —

Buffalo-Springfield Roller Co.  
Springfield, Ohio



THE LEADER IN ROAD ROLLER DESIGN AND MANUFACTURE.

UNUSUALLY TREACHEROUS BOG conditions complicated pile driving on construction of the \$557,000 Taylor's Bayou Bridge, part of the new short road which will join New Orleans, La., and Houston, Texas, along the Gulf Coast. The 2,232-foot structure, located southwest of Port Arthur, Texas, is being built by Harry Newton, Inc., Graham, Texas. Work started last January and is scheduled for completion late this month.

Designed for H20-S16 loading, the bridge will have a 28-foot clear roadway, curb to curb, with a 6½-inch-thick concrete deck and 19-inch-wide refuge walks along each guardrail. The main bridge consists of two continuous I-beam units, each 313 feet long; three 300-foot continuous I-beam units; two 346-foot units; and an all-welded 100-foot-long plate-girder span in the center. The plate-girder span clears the water by 34¼ feet.

The center span is designed so it can be equipped with a lifting mechanism if traffic on Taylor's Bayou ever becomes heavy enough to warrant the cost. The deck rises from each end on a plus grade of 3.5 per cent toward the vertical curve in the center.

### Substructure

The bridge is supported on a total of 39 bents. Two especially big bents under the lifting units have ten piles each, with four piles battered on a two-way reverse arrangement of 3 to 12. Typical bridge

The Manitowoc 2000 crawler crane re-arranges its timber mat so that it can roll to a new position.  
Ray Day Photo





Concrete from a 1-yard Blaw-Knox transfer bucket, handled by a Bucyrus-Erie 22-B crawler crane, is poured into a pile shell. Ray Day Photo

# Bols Tough Problem

Placing steel shell piling hampered by marshy conditions; heavy timber mats needed to provide support for equipment

bents consist of six piles each driven in three-pile clusters, with one vertical pile and two double batters (3 to 12) in each footing. These three-pile footings are capped with 6 x 7-foot reinforced-concrete pedestals, a tie beam with rising 30-inch round concrete columns, and a top cap 3 feet deep and 2½ feet wide. The steel I-beams for batters were supplied by the American Bridge Division of the U. S. Steel Corp.

When the Bridge Division of the Texas State Highway Department let the contract for the bridge, it designated alternate methods of pile driving: either reinforced-concrete precast piles or steel shell cast-in-place concrete piling. Since the footing beneath the area is so boggy that all work had to be carried on from heavy mats, Newton decided to use Armco Spiralweld pile shells because of their light weight and their ease of handling. The entire job consisted of 14-inch round shells.

Load-bearing capacities of each of the piles had been calculated at from 35 to 38 tons. Test results showed lengths of from 48 through 64 feet would have to be used with the piles functioning as friction units. The marsh underneath was sticky heavy organic-laden clay. A light covering of marsh grass lay over the formation.

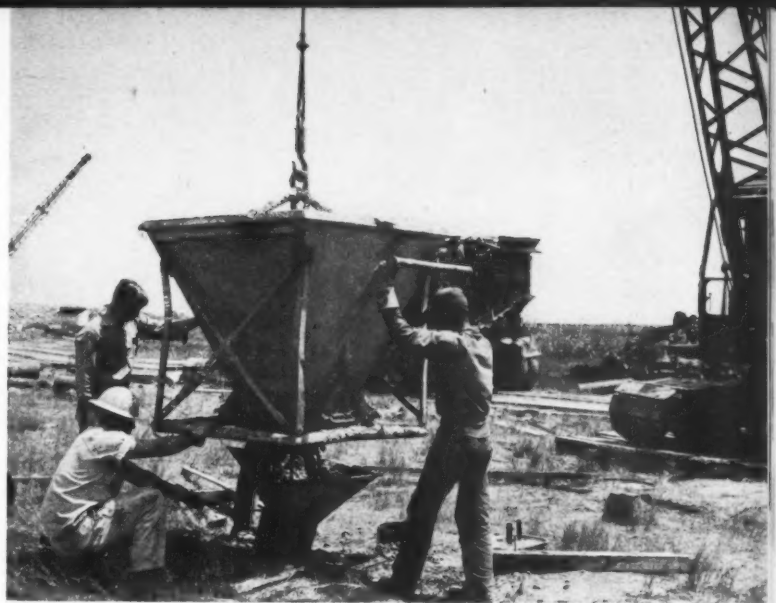
A heavy timber mat was used to support the small crane which drove the test piles. Despite this, the crane tipped during the test driving. Taking a cue from this mishap, Newton constructed a strong timber corduroy road paralleling the bridge site adjacent to the pile clusters. The road consisted of 3 x 8 rough oak planks criss-crossed in such a way as to develop bearing capacity in the same way as the web of a snowshoe.

## Shell Sections

When the corduroy road was built out to the bayou's edge, Armco Spiralweld pipe sections began to arrive by rail in Port Arthur from Ohio. The sections were brought by truck to the bridge site and delivered to a small A-frame unit mounted on a heavy truck. This rig carried them to the point of operations, where the load line of the pile driving unit could get at them.

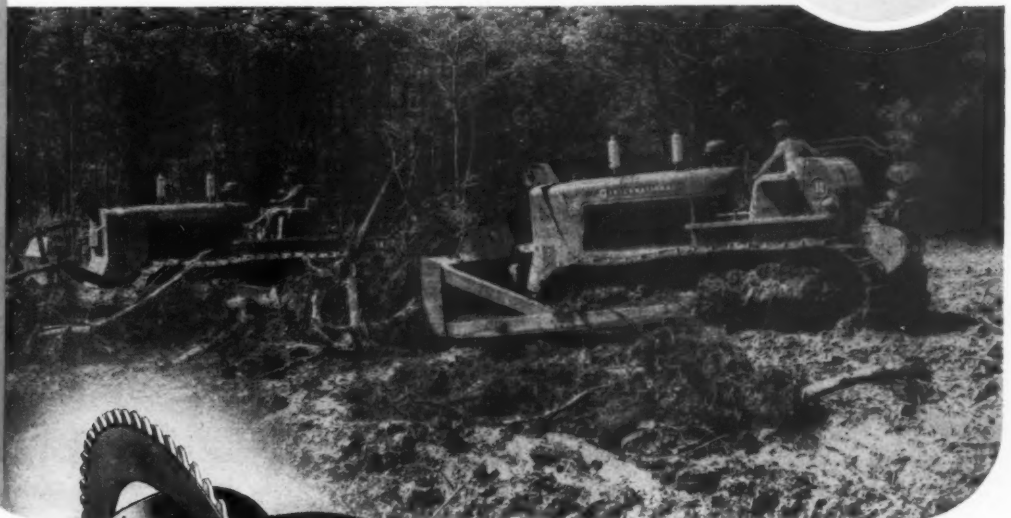
Originally, the shell sections were ordered uncoated. When the Texas Highway Department decided to coat part of the vulnerable sections with asphalt protection, the work was done under a change order by force account. The steel shells were

(Concluded on next page)



*"Velvetouch is the only friction material to withstand ... constant hard usage"*

George Loper



Keeping approximately 600 pieces of construction equipment out of the repair shop and on the job, is a mighty important responsibility. But George Loper, Equipment Superintendent for James D. Morrissey, Inc., Philadelphia, takes it in stride . . . thanks to Velvetouch all-metal clutch plates, facings and brake linings.

"Since changing to Velvetouch frictions," Mr. Loper writes, "we find our down-time reserved to periodic overhauls."

You also, will find that Velvetouch minimizes field break-downs. Why? Because it's all-metal! Because it's heavy-duty built for continuous operation. Write for details today.

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\* SALES OFFICE AND WAREHOUSE \*\* SALES OFFICE

# Velvetouch

The S. K. Wellman Co.  
200 Egbert Rd. • Bedford, Ohio



A workman, right, sprays Spiralweld pipe sections with asphalt, using a DeVilbiss gun powered by a 105-cfm Schramm compressor. Ray Day Photos

## Pile-Driving In Bog Is Tough Problem

(Continued from preceding page)

wire-brushed to remove rust and sprayed with a small DeVilbiss gun powered by a 105-cfm Schramm compressor.

Land pile-driving equipment consisted of a small 45-hp American Hoist & Derrick steam boiler, Goodall rubber steam hose, a Vulcan No. 1 pile hammer, a 72-foot set of wood and steel leads, and a Manitowoc 2000 crawler crane with 80 feet of

boom. Double thicknesses of 12x12 timber mats were used under the Manitowoc, where necessary, to support it on the boggy marsh. The mats were wide enough so the crane could maneuver around and get in position to drive even the toughest batter piles. The machine drove between 8 and 12 pile shells per day.

### Pile Driving

The actual pile driving was easy once the rig was in position. Reaching up with its load line, the Manitowoc picked up a pile shell and positioned it in the leads. While the shell was being lifted, the hammer remained in the down position near the base of the leads to increase the stability of the crawler-mounted crane. When the shell was positioned in place, the hammer was raised to the top of the leads and belled on the top of the shell.

Ordinarily, one of the pile shells would sink from 20 to 25 feet under the weight of the hammer alone, without a blow having been struck. In all cases, driving was accomplished in a matter of minutes after the pile was belled and started downward. A multiplying factor of 1.8 was used with the modified *Engineering News Record* formula in calculating the bearing capacity of the pile units. This factor was determined by static load tests made on one of the piles to be used in the substructure.

For the work from the bayou itself, the Manitowoc was mounted on a barge. A "Bridgmaster"—a gantry-mounted Clyde hoist with an 80-foot boom and a steam boiler—was also used from the water. It operated from a set of railroad tracks spaced 34½ feet apart and carried on wood pile clusters which the rig drove for itself at regular intervals.

### Concrete Work

As the pile shells were driven in, they were quickly filled with truck-mixed concrete from Brown-Lane Co., Inc., Port Arthur. A small fleet of Rex Moto-Mixers was used. They would back down the timber corduroy road and drop their loads into a 1-yard Blaw-Knox transfer bucket at a slump of about 3½ inches. The transfer bucket was handled by a Bucyrus-Erie 22-B crawler crane.

The concrete was dropped through a small hopper and elephant trunk into the pile shells. It was allowed to build up without vibration until each shell was filled. Studies made of this method of construction showed no apparent segregation or pocketing of any of the concrete materials.

When CONTRACTORS AND ENGINEERS visited the job, a research project was being carried out to determine the best procedure to follow in placing the reinforced-concrete footings in the marsh bog. A steel pan form had been devised which was in the exact outer shape of the finished concrete. The form had one disadvantage: it called for precise excavation of the material around it.

A better method seemed to be to excavate for the footings with a Blaw-Knox 1-yard clamshell bucket handled by the 22-B crane, and to set in place a self-locking wood form consisting of plywood facing nailed to a series of 2x4 studs



## How is this for Flexibility in an 18-in. Diameter Culvert Pipe?

This 28-ft culvert is flexing under its own weight. Made of 16-gage galvanized sheet steel, it consists of two 14-ft sections joined by a single field coupling. Its total weight is 440 lb.

Large-diameter corrugated pipe of sheet steel has a high degree of flexibility and tensile strength. These properties allow the pipe to conform to irregular grade in a trench. They mean that the pipe can absorb changing loads caused by shifting or freezing soils, without pulling apart. And they permit it to withstand the impact and vibration of overhead traffic.

In addition, this kind of pipe weighs only a fraction as much per foot as comparable pipe of other materials. It comes in longer sections that are easy to handle without special lifting equipment, and that require the minimum of field joints.

**COPPER-BEARING,  
CORROSION-RESISTING STEEL**

Bethlehem does not fabricate culvert or drainage pipe, but does manufacture the Beth-Cu-Loy galvanized corrugated and flat steel stock used by pipe fabricators. This copper-bearing steel carries

a heavy coating of zinc and has excellent resistance to corrosion. It more than meets Federal specifications, as well as those of the American Association of State Highway Officials.

If you would like further information on Beth-Cu-Loy, or if you would like to know who uses it in culvert pipe, write or phone any Bethlehem office.

**BETHLEHEM STEEL COMPANY  
BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



**BETH-CU-LOY GALVANIZED CULVERT SHEETS**

### CHECK THE RED REQUEST CARD!

For further information on the new equipment, new materials, and new literature described in this issue of *Contractors and Engineers* check the item number on the Red Request Card bound in at page 18. No obligation, of course, and we will forward your request directly to the manufacturer.

**CONTRACTORS AND ENGINEERS, 470 Fourth Avenue, New York 16, N. Y.**



and wales. Concrete for these footings was delivered and placed in the same way as for the pile shells.

For the tie beams, a conventional system of wood forms with plywood facing had been worked out, with panels designed for re-use as long as they would hold up. They were set in place on a support work consisting of 3x8 timbers bolted two ways to the pile shells by means of heavy form tie bolts. The 2x8 timbers laid transversely over these cleats acted as joists to support the form panels. The forms were locked externally, eliminating the need for form tie bolts.

#### Personnel

Contractor's operation in the field were handled by Zack Burkett, general superintendent, assisted by B. A. Trice, project engineer. Floyd Payne was the pile-driving foreman, and Walter McDonald was the general foreman.

Texas State Highway Department operations were under the general supervision of D. C. Greer, state highway engineer. Randle B. Alexander is bridge engineer, and W. E. Simmons, of Beaumont, is district engineer. V. O. Ellis, senior resident engineer, is handling the project under the direct supervision of Mark Swain, senior resident engineer at Port Arthur.

THE END

#### Line of Snow Plows

Literature on a variety of snow plows is available from Balderson Inc., Wamego, Kans. The company makes V-type plows for all motor graders. With the correct push arms and any necessary adapters, the plows fit all Caterpillar, Allis-Chalmers, Adams, Austin-Western, Galion, Rome, Warco, and other motor graders, with and without scarifiers. Mechanical or hydraulic control is furnished as required.

Also illustrated is a one-way plow that attaches to motor graders for use on airports and highways where snow is to be removed to one side only. There are also V-type and reversible-blade snow plows for any Caterpillar track-type tractor, the HT-4, and the No. 6 shovel. Side-walk snow plows and one-way and V-type plows for trucks round out the line.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 602.

#### SASGEN

New Electric-Powered CHAMPION

DERRICK

The most complete line of contractors' derricks, hoists, and winches. Write for catalog.

The Sasgen line is handled by leading equipment distributors everywhere.

**SASGEN DERRICK COMPANY**  
3131 W. Grand Avenue, Chicago 22, Illinois

#### New Scraper Models

A new line of self-propelled and tractor-drawn scrapers is offered in a wide range of capacities by the Wooldridge Mfg. Co., Sunnyvale, Calif. All feature the company's open-bowl design.

Three self-propelled units include the 10-speed 225-hp Terra Cobra 142, which has capacities of 18.0 cubic yards heaped and 14.1 cubic yards struck. The Model 090B handles 15.0 cubic yards heaped, 12.2 struck, and is rated at 180 hp. The Model 090, with 165 hp, has capacities of 13.5 cubic yards heaped and 10.2 struck.

The new line of open-bowl scrapers are the Wooldridge OS-152 with capacities of 19.0 cubic yards heaped and 15.2 struck, Model OS-90 rated at 15.0 cubic yards heaped and 12.2



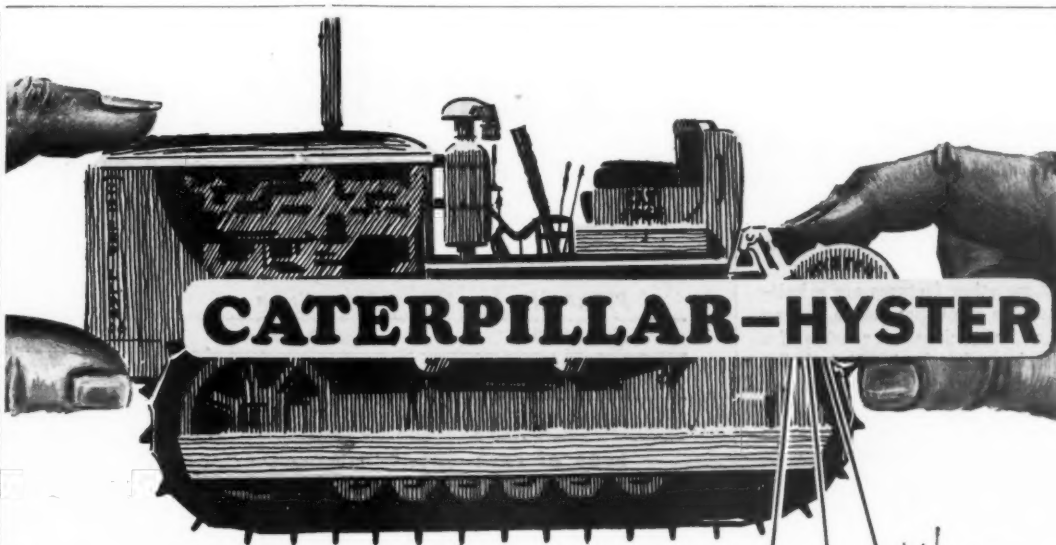
The Terra Cobra Model TH-090B, one of a series of new Wooldridge earth-movers.

struck, and Model OS-80 which holds 10.5 cubic yards heaped and 8.4 struck.

Two cable-control units, a heavy-duty ripper, and a rear-dump rock

wagon are other recently announced products.

For further information write to the company, or use the Request Card at page 18. Circle No. 590.



...the **RIGHT MATCH** in equipment that is your assurance of greater tractor productivity!

For nearly a quarter century, owners of Caterpillar-built tractors have looked to Caterpillar-Hyster Dealers for the ideas and properly-matched equipment that increase tractor productivity.

Today, over 700 Caterpillar-Hyster Dealer stores around the world bring you the *right* tractor equipment for your job plus the two big advantages that Caterpillar-Hyster offers:

"MATCHED DESIGN," the result of close co-operation between Caterpillar and Hyster engineers, which assures the proper operation of the tractor and attached equipment as *one unit*.

"PACKAGED" EQUIPMENT, which brings you *all* the right equipment on ONE order—plus the advantages of dealing with ONE service for all your needs, such as *one* financial plan, *one* source of parts and service, *one* source for ideas on product application.

For information or literature helpful to your job, see your Caterpillar-Hyster dealer or write:

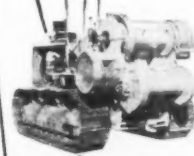
#### HYSTER COMPANY

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19 types and sizes for every application—in construction, mining, logging and manufacturing industries.



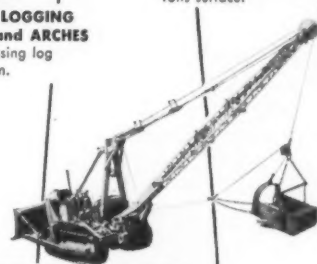
**HYSTER TRACTOR DONKEY and YARDERS**—hoists for all types of pulling and hoisting jobs.



**HYSTER LOGGING SULKY and ARCHES** for increasing log production.



**HYSTER GRID ROLLER**—the basis of a revolutionary new road rebuilding method which salvages all the old bituminous material, also compacts base, rolls surface.



**HYSTAWAY EXCAVATOR-CRANE**—mounts on used or new tractors... convertible to shovel, backhoe, dragline, clamshell, crane, piledriver, plus bulldozer!

Wherever you are ... there is a Caterpillar-Hyster Dealer near you



HYSTER COMPANY • PORTLAND, OREGON; PEORIA, ILLINOIS; NIJMEGEN, THE NETHERLANDS

THERE'S PROFIT IN  
**HYSTER POWER**

## Literature on Wire Mesh That Reinforces and Forms

■ Literature on a reinforcing mesh with a built-in pliable forming material for use with concrete, mortar, stucco, and plaster is available from the Pittsburgh Steel Products Co., Room 1404, Grant Bldg., Pittsburgh 19, Pa. Examples of Steeltex applications to give strength and form to floors, roofs, ceilings, and walls, both interior and exterior, are given in detail. Tables of weights, safe loads, and cutaway drawings supplement photographs and editorial material showing how the product can be used.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 619.

## Machinery Trailers

■ A line of platform trailers for hauling heavy equipment is made by American Body & Trailer, Inc., 1500 Exchange Ave., Oklahoma City, Okla. The trailers are of structural steel and all-welded construction. The side frame is of 12-inch flexible Man-Ten steel channel, and the center frame is 10-inch I-beam. The 5-inch channel cross members are spaced 24 inches between centers for extra strength and better support of the trailer's oak floor.

Among other features are a half-round pipe front that makes loading easier. The pickup eye consists of a 1¼-inch steel rod with ¾-inch flat steel plate attached with a heavy weld.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 575.

## Two Join Foster Staff

The Los Angeles, Calif., office of the L. B. Foster Co., Pittsburgh, Pa., suppliers of sheet piling and pipe, has added two men. V. J. Hornak and George F. McDonald have joined the sales staff.

Mr. Hornak was department manager of the Houston, Texas, Chamber of Commerce from 1949 to 1952. He is a graduate of Texas A. & M., where he majored in physics.

Mr. McDonald was formerly associated with the Tube Sales Co. Prior to that, he was with the Frick & Lindsay Co., Pittsburgh, for six years. He holds a bachelor of science degree from Lafayette College.

## Booklets on Excavators

■ Bulletins covering its recently introduced Type 44 and Type 803 excavating machines are announced by the Baldwin-Lima-Hamilton Corp., construction equipment division, Lima, Ohio. Working ranges and brief specifications as well as capacities are included in the material.

Type 44 is a 1-yard machine with a 15-foot dipper handle and a 20-foot boom. Equipped as a crane, it has a lifting capacity of 25 tons. This machine is available on crawler or rubber-tire mountings. Type 803 is a 2½-yard machine with an 18-foot dipper handle and a 24½-foot boom. Its lifting capacity is 50 tons.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 558.



Louis B. Neumiller, left, and H. S. Eberhard, president and vice president, respectively, of the Caterpillar Tractor Co., unveil a medallion commemorating the 50th anniversary of the first practical track-type tractor.

## Tool and Accessories For Paving Breakers

■ The company's complete line of tools and accessories for paving breakers is cataloged in a booklet from Ingersoll-Rand, 11 Broadway, New York 4, N. Y. A 2-page spread introduces the reader to the various units in the paving-breaker line. Tools and accessories for the paving breakers are illustrated and recommended applications listed. A table of weights and sizes is presented with each illustration.

A separate section contains specific instructions for reforging and rehardening moil points, chisels, and wedge points.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 548.

# A UNIVERSAL production report to crushing plant operators

<b>Plant Site</b>	Herington, Kansas
<b>Operators</b>	Anderson-Oxandale
<b>Requirements</b>	High tonnage of aggregate to meet state's exacting specification. Frequent moves and changes in product specification required.
<b>Equipment</b>	Universal 3240 Impact Master. Universal portable screening and blending unit.
<b>Type of rock</b>	Dolomite limestone.
<b>Production</b>	Currently they are meeting a difficult specification calling for a large percentage of minus ¼ inch. They are producing up to 150 yards per hour of which 100% passes a one inch screen, 90% passes a ¾ inch screen, 50-60% passes a ¼ inch screen. When desired Anderson-Oxandale can reduce the production of minus ¼ inch material by at least 50%.



Anderson - Oxandale's portable 3240 Impact Master, crushing, screening, blending and loading plant operating near Herington, Kansas.

Anderson - Oxandale had to have a crushing plant that could be moved frequently with a minimum of down time, produce high tonnages of top-quality aggregate at each set-up, and meet exacting specifications. The Universal Impact Master (portable) with *Controlled Impact Action* combined with Universal's portable screening and blending unit was the answer.

The Impact Master, with *Controlled Impact Action* gives you four important advantages: (1) Greater control of the finished size of your material. (2) Cleaner, more cubical aggregate. (3) Lower operating cost — it requires less horsepower per ton. (4) Lower maintenance cost.

### What Is Controlled Impact Action:

**Control point 1:** Controlled feed chutes the rock into the unobstructed path of the first rotor ham-

mer circle for terrific impact, providing maximum unobstructed penetration. The angle of the plate can be quickly changed to handle rock of different size and density and meet varying quarry conditions. Incoming material penetrates the first rotor hammer circle at the correct angle for efficient breaking. **Control point 2:** you control the range of sizes by simply regulating the speed of the rotor hammers. **Control point 3:** you can easily adjust the stripper bar and lower screen grate to get the percentage of sizes you want.

With these three methods of control, you get what you want. It's no hit or miss proposition. "Controlled Impact Action" is more than a phrase with Universal. It's the key to the way all Universal Impact Masters produce more aggregate of higher quality to exact specification at lower cost.



## Heavy Trailer Converts From Float to Low-Bed

■ A trailer that can be converted from float to low-bed by mechanical operation from the winch on the tractor is made by the Hamilton Trailer Co., Hamilton, Texas. To make the switch, the loading platform pulls out and swings down into position on specially-designed hinged sections. These are locked into place to give rigidity. To convert back to a float, the hinged sections are unlocked, and the loading platform is lifted up and pulled into place with the rear deck.

When used as a low-bed, the gooseneck is detachable so that equipment may be loaded over the front end. This eliminates side loading or the use of a loading ramp so that a pickup or delivery to a



The Hamilton convertible trailer as a low-bed hauling a Lima excavator crane.

job site can be made regardless of the location.

With the equipment or machinery delivered, the Hamilton convertible

is then changed into a front-end loading float ready for any kind of back haul load. This saves using a second truck for hauling materials

and supplies and a dead-head run with an empty low-bed.

When used as a float, the gooseneck is stowed into a slot over the tandem assembly and fits flush with the rear deck to become an integral part of the floor. Two models are available with net payload capacities of 25 and 35 tons.

For further information write to the company, or use the Request Card at page 18. Circle No. 593.

## Galion Allsteel Acquires Austin Tractor-Loaders

The Galion Allsteel Body Co., Galion, Ohio, manufacturer of dump bodies and hoists, has acquired the sales and manufacturing rights to the complete line of Austin Overshot tractor-loaders, patented and built by John Austin Mfg. Co., Denver, Colo. The Galion firm anticipates that all Austin activities will be moved to its plants in Galion and Mansfield, Ohio.

The Austin Overshot loader was originally designed and introduced by John R. Austin, internationally famous tunnel builder. Under the terms of the Galion-Austin agreement, Mr. Austin and his engineering staff will continue to serve Galion as consultants and advisors. Galion plans to market the loader through established equipment distributors in every section of the country.

## Record of Truck Costs

■ The availability of its latest annual cost-record book is announced by the Autocar Division of the White Motor Co., Ardmore, Pa. The book, which provides a simple and accurate system for keeping a record of operating costs for each vehicle in a fleet, is given on request to any heavy-duty truck operator whether or not he operates Autocar trucks.

The cost record includes space for a daily listing of miles traveled, number of trips, units carried, unit miles, driver's and helper's wages, and the quantity and cost of gasoline, oil, and grease used. The cost of garage labor, repair parts, tires and tire repairs, garage supplies, depreciation, interest, housing insurance, taxes, painting, and washing are also taken into account. A double column provides for comparison of actual and estimated costs.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 545.

## Battery-Operated Greaser

■ A battery-operated greasing unit that provides a means of supplying grease to equipment using its own power is described in literature from G & T Industries, Inc., 1420 Barwise, Wichita, Kans. Components of the unit are a cam-driven plunger-type pump, a grease filter, a pressure gage, and an automatic pressure switch for pressures up to 3,000 psi. A booster control valve permitting pressures up to 12,000 pounds, 10 feet of battery cable, and 25 feet of high-pressure hose also come with the unit.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 634.



Portable 3240 Impact Master with 3 speed transmission drive from diesel power mounted to the side. Slide mounted 36" x 16'-0" portable apron feeder. Eighteen inch closed circuit return conveyor from portable screening unit. 30" delivery conveyor to portable screening unit.

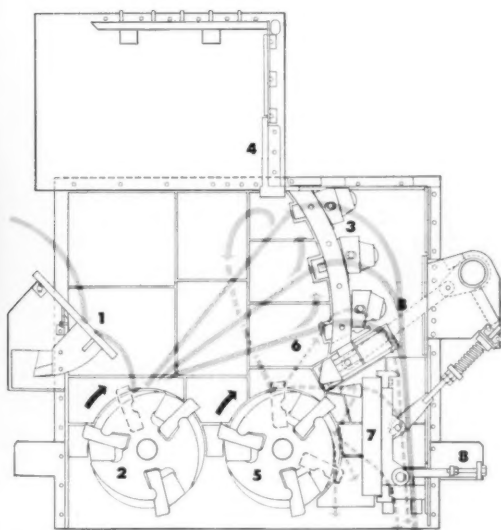


Universal portable screening and blending unit. All electric driven with 5' x 14' 3 deck inclined gyrating screen equipped with ball tray. Two 30" forward delivery conveyors and one 18" side delivery conveyor. Positive blending chutes with gates control different aggregate specifications. 18" return conveyor to Impact Master.

## How the Universal Impact Master works:

The diagram at left shows the flow of material. Adjustable feed (1) chutes the incoming rock into the first rotor hammer circle at proper angle. Rock is hit in motion, exploded into cubical shaped pieces by terrific impact of the rotor hammers, and at the same time hurled toward the deflector screen grate (3) where finished sizes are immediately discharged. Oversize particles are deflected upward, hit the feed chute back plate (4) and drop down into the path of the second rotor hammer circle (5) where they are reduced by impact and projected toward the bottom half of the deflector screen grate and the lower screen grate for immediate discharge. Both rotor hammers rotate toward the discharge opening. Material always flows rapidly in one direction. No grates, screens or bars obstruct the discharge opening. Large expansion chamber is also completely free of obstructions. All breaking is done by impact. There is no attrition, abrasive or grinding action. Thus wear is kept to a minimum.

More and more operators are turning to the Universal Impact Master, with "Controlled Impact Action." Its high production capacity, excellent performance, and simplicity of construction just naturally results in a more efficient, more profitable operation. Tonnages up to 750 tons per hour. Available in sizes: 3240, 3645, 4250 and 5260. Write for complete information today.



1. Adjustable feed plate
2. First rotor hammer
3. Deflector screen grate
4. Feed chute backplate
5. Second rotor hammer
6. Stripper bar
7. Bottom screen grate
8. Adjustments

## UNIVERSAL ENGINEERING CORPORATION

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UNIVERSAL GAVE CEDAR RAPIDS ITS  
ORIGINAL FAME FOR QUALITY CRUSHERS IN CEDAR RAPIDS SINCE 1906



# UNIVERSAL



**Earth-Moving**—A Euclid loader pulled and pushed by Allis-Chalmers HD-20 tractors, loads a 25-yard bottom-dump Euclid on the Garrison Dam project in North Dakota. Peter Kiewit Sons' Co. and Morrison-Knudsen Co. are doing the excavation work.



**Special Equipment**—Also on the Garrison Dam project is this Allis-Chalmers HD-38, one of three Siamese tractors remodeled by PK-MK from two Allis-Chalmers HD-19 tractors. In the background, an Allis-Chalmers HD-20 pulls a McCoy sheepfoot roller.

# NEW COMPACTION RECORDS SET BY SOUTHWEST COMPACTION ROLLER

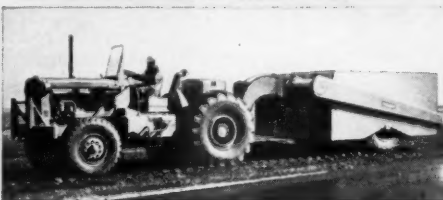
Cat DW21 Tractor equipped with  
50-75 ton Southwest Compaction Roller



## with Caterpillar Diesel Tractors

USING FEWER PASSES over heavier lifts the Southwest Compaction Roller is setting new records on every job. On the bigger jobs the combination of the Southwest Roller and Cat DW21 keeps pace with 24-hour job schedules and the largest earth moving equipment. With the extra flexibility of the exclusive Southwest independently oscillating weight-box units, you get uniform compaction weight on each tire regardless of ground contour. And there is no bridging, no shifting of load.

To suit varying job requirements the hauling yoke is sectionalized for adding or subtracting weight boxes... the yoke is also flanged to permit changing the draft beam assembly... and the weight boxes can be filled with any material to obtain desired total weight. Sizes and capacities range from 10 to 100 tons. Write for compaction data covering various types of soil and for illustrated literature.



CONSTRUCTION MACHINERY DIVISION  
**Southwest Welding & Manufacturing Co.**

ALHAMBRA, CALIFORNIA

## Samples of Ancient Concrete Uncovered

What is believed to be the oldest known examples of hydraulic concrete, which is capable of "setting up" or hardening under water, have been recovered from piers which once supported a large wharf in the bay of Pozzuoli, Italy, near Mt. Vesuvius. Samples of the 2,000-year-old concrete (still in serviceable condition) have been brought to the United States by Henry L. Kennedy, president of the American Concrete Institute.

The wharf from which the specimens were obtained was built during the reign of Roman Emperor Caius Caesar Caligula, 12 to 41 A. D. The piers have been submerged since that time.

The samples are undergoing tests at the Dewey & Almy Chemical Co. laboratories in Cambridge, Mass., to determine their resistance to weathering, freezing-thawing action, and other deteriorating forces to which the concrete, having been submerged in a warm climate, has not been subjected. Mr. Kennedy is in charge of Dewey & Almy's construction specialties division.

Prior to the discovery, it was believed the ancients, who normally built structures such as wharves of masonry, had not learned how to make hydraulic concrete. According to the Italian concrete technologists who presented the samples to Mr. Kennedy recently, Roman engineers discovered, probably accidentally, that the volcanic ash from Mt. Vesuvius reacted with lime to make a cement that would harden under water.

An accurate comparison of strength

## DRILLING CONTRACTORS

Diamond and Shot Core Borings, Dry Sample Borings, Grout Holes and Pressure Grouting, Foundation Testing for Bridges, Dams and all Heavy Structures

Manufacturers, also, of Diamond Core Drilling Machines and complete necessary equipment, including all types of Diamond Drilling Bits.

Write for Catalog No. 320

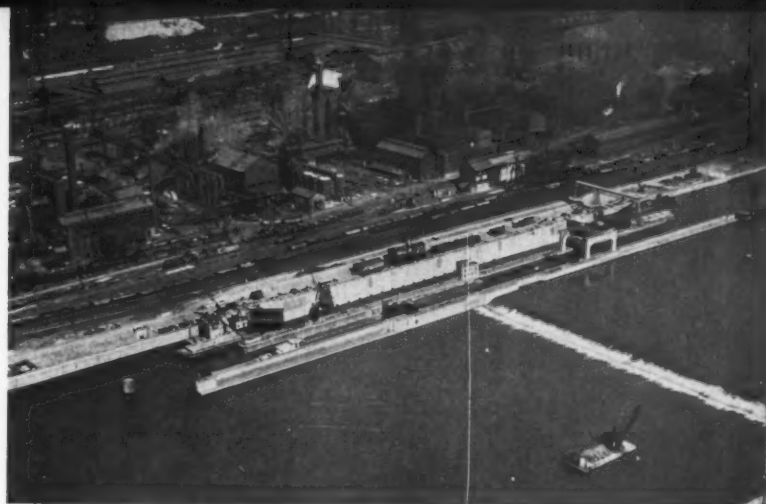
**SPRAGUE & HENWOOD, INC.**

Dept. C, Scranton 2, Pa.





**New Road Base**—Knoxville Construction Co. lays a base of crushed limestone on a Tennessee highway with two Jaeger self-propelled aggregate spreaders. The contractor staggers the machines to lay three 6-inch courses to full width.



**Eliminating Bottlenecks**—One of the busiest riverlocks in the world, and one of the largest on the inland waterways system is Lock No. 2, on the Monongahela River at Braddock, Pa. Rebuilt by Dravo Corp., the project took almost 4½ years to complete.

and durability between the early Roman and the modern product cannot be made. Portland cement, as we know it today, and air-entraining agents, which greatly improve the durability of modern portland-cement concrete, are modern advances unknown to the ancients.

#### Explains Self-Priming In Centrifugal Pumps

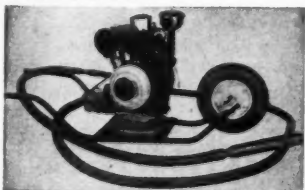
■ Literature that tells how self-priming centrifugal pumps work is available from Marlow Pumps, Box 566, Ridgewood, N. J. Bulletin X-52 begins with a discussion of centrifugal action and the physics of pumping. It then points out that the basic method of self-priming used is that in which liquid from a reservoir on the discharge side of the pump impeller is allowed to splash on the impeller. The liquid thus picks up the air in the form of bubbles and removes it from the suction side of the pump.

The booklet reduces the means by which this is accomplished to two fundamental methods, each employing a different principle. One is called recirculation priming and another, diffuser priming. The latter is distinguished from the former by the fact that the priming liquid is not returned to the suction side of the pump, but mixes with the air at the circumference of the impeller.

Other information given in the literature includes details on applications of the various types of pumps and data on the installation and operation of self-priming centrifugal pumps.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 627.

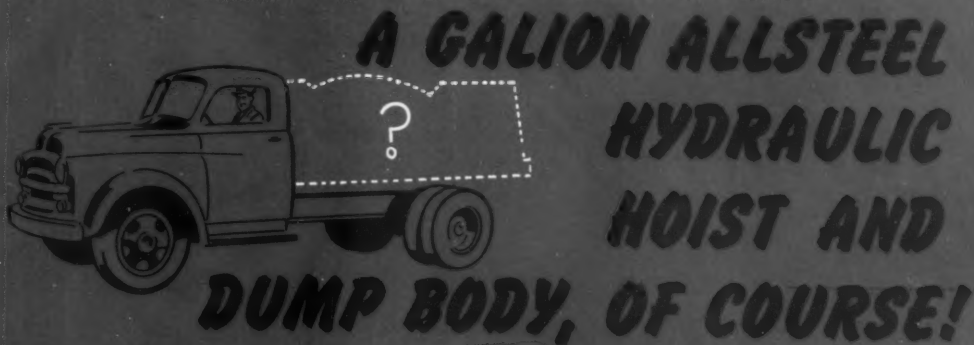
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MOUNTED ON WHEELBARROW CHASSIS  
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**ROETH VIBRATOR CO.**  
9229 Chestnut Ave., Franklin Park, Ill

JANUARY, 1954

What's behind the man in the truck cab?



Galion Model 770 hydraulic hoist with steel subframe engineered for loads up to 14 tons.



Trailer dump with 16 yd. sides and 20 yd. ends, semi-bay front with 7", 3 stage twin telescopic hoist.

A Galion dump body, operated by a Galion hydraulic hoist behind your driver's cab, means that your job will begin on time, continue steadily and earn you greater profits.

Galion Allsteel manufactures a complete line of standard and heavy duty hoists and dump bodies from 3 to 27 ton capacities to meet every need. And, if you need extra heavy duty or special units to fill unusual requirements, Galion Allsteel will be happy to design and build them for you.

A-8824



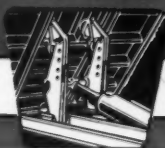
Galion Model 700 hydraulic hoist with Model 12 contractors body—a rugged combination for 6½ to 9½ ton capacity.

**GALION**  
ALLSTEEL BODY CO.  
GALION, OHIO



See your Galion distributor and have him put a GALION ALLSTEEL unit behind your truck cab today!

THE



**GALION**

ALLSTEEL BODY COMPANY • GALION, OHIO



**Grading**—Approach fills for the new interchange structure separating Cleveland's E. 55th St. and Memorial Shoreway are compacted by a sheepfoot roller, pulled by a Tournatractor. National Engineering & Contracting Co. of Cleveland is doing the \$2,600,000 job for the Ohio Department of Highways.



**Concrete Batching**—These two Blaw-Knox batching units turn an average of 1,700 cubic yards of concrete daily for the U. S. Atomic Energy Commission's Paducah area project. The wet-mix and dry-mix units, with capacities of 150 and 50 cubic yards per hour respectively, will supply an estimated 750,000 cubic yards of concrete.



▲**CP-365 REVERSIBLE AIR IMPACT WRENCH**—Ideal for fast, efficient structural bolting up and for maintenance of heavy construction equipment. Cuts nut running time in half. Handles nuts and bolts to 1 1/4" bolt size.

*cost-cutting  
equipment  
that really  
pays off*



**CP PORTABLE AIR COMPRESSOR AND G-300 WAGON DRILL**—This economy-minded, diesel-driven CP Portable Air Compressor supplies air for the readily adaptable G-300 Wagon Drill equipped with a hard-hitting 70-NDC Drifter. Gradual Speed regulation of the compressor governs engine speed to conform to air demands to save fuel and reduce engine maintenance.



▲**CP DEMOLITION TOOLS**—Afford the maximum penetration that makes quick work of the toughest jobs. CP's complete line makes it possible to select the model most economical for each job. Capacities range from the CP-111 (25 lb. class) to the CP-117 (80 lb. class).



**Chicago Pneumatic**

8 East 44th Street, New York 17, N. Y.

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### La. Gets Rubber Road

Louisiana joined 25 other states which already have tried out sections of rubber roads when New Orleans recently put down the first piece of such pavement on old St. Ann Street, between Burgundy and Dauphine. Alongside the rubber pavement, a strip without rubber was laid for control purposes. Comparisons will be made regularly.

As they are now laid, rubber roads actually contain only about four per cent natural rubber powder (against the weight of the asphalt) added to the normal asphalt mix. The final mixture that goes down looks the same as asphalt and is put down in the same manner.

### Hinds Joins Ulrich

O. Q. Hinds, former motor-grader consultant for the Caterpillar Tractor Co., has joined the Ulrich Products Corp., Roanoke, Ill., as consultant. Ulrich makes Domor attachments for Caterpillar graders and tractors.

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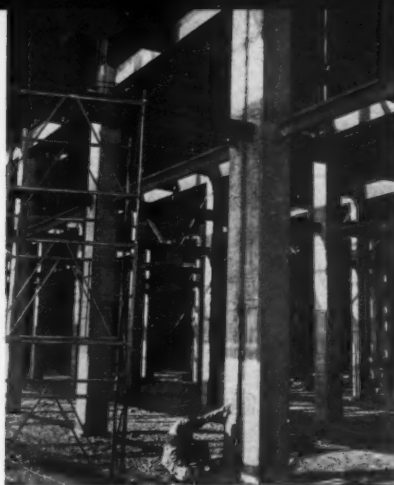
**DRILLING COMPANY**

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**Column Encasement**—Ready-mix concrete is pumped into forms, 28 feet high, encasing steel building columns at the U. S. Atomic Energy project, Paducah, Ky. F. H. McGraw & Co., Hartford, Conn., is the prime contractor.



Prehy grouters supplied by the C. L. Ballard Co., New York City, pump 10 to 12 columns of concrete per day, using compressed air to force concrete through a 2-inch flexible hose.



When the form is filled, it is sealed off with a sliding metal gate and the hose is moved to another form. With buggies and runways eliminated, concrete placement is speeded.

### Lifesaving Booklet

A folder illustrating the Nielsen "back-pressure arm-lift" method of artificial respiration has been released by the public education department of the Aetna Life Affiliated Cos., Hartford, Conn. The new method, which is replacing the Schafer "prone-pressure" method used in this country for the past half century, increases chances for survival since it pulls fresh air into the lungs as well as expelling air from them.

"A Life in Your Hands" is available free of charge from local Aetna agents or from the home office in Hartford.

### C. W. Chapman

Clifford W. Chapman, for many years the secretary and treasurer of Richmond Screw Anchor Co., Inc., 816-838 Liberty Ave., Brooklyn 8, N. Y., manufacturer of clamps, ties, forms, and other concrete accessories, died recently.

### Yours for the Asking

Further information or descriptive literature can be secured from any advertisers in this issue of **CONTRACTORS AND ENGINEERS**. Just write name of manufacturer and product of interest to you on the extra line provided on the post card facing page 18, fill in your own name and industry connection, mail to us and we'll do the rest.

### CONTRACTORS AND ENGINEERS

470 Fourth Avenue, New York 16, N. Y.

## McKIERNAN-TERRY PILE HAMMERS

Help  
Beat  
Schedule  
on this project

Eight months ahead of schedule! That was the record chalked up on this Oakland outfall sewer line, despite wet heaving ground that required sheeting of trench every inch of the way. An ingenious mobile sheeting jig and fast-driving McKiernan-Terry Pile Hammers solved the problem.

Here's how. The jig held lagging for 20 lin ft of timber sheeting on both sides of the trench at the same time. Sheeting was driven quickly by McKiernan-Terry No. 6.5 Double-Acting Hammers . . . as much as 245 pieces of sheeting daily.

Wherever you need speed and pile-driving power, it will pay you to use dependable McKiernan-Terry equipment. Wide-range line includes 16 sizes of single-acting and double-acting hammers and 2 sizes of double-acting extractors. Write for bulletin.

McKiernan-Terry Pile Hammer punches down timber sheeting for fast sewer job in Oakland, Calif. Ben C. Gerwick Inc. and George C. Pollock Co. were the joint contractors.



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TERRY**

McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS  
19 PARK ROW, NEW YORK 38, N. Y.  
Plants: Harrison, N. J., and Dover, N. J.

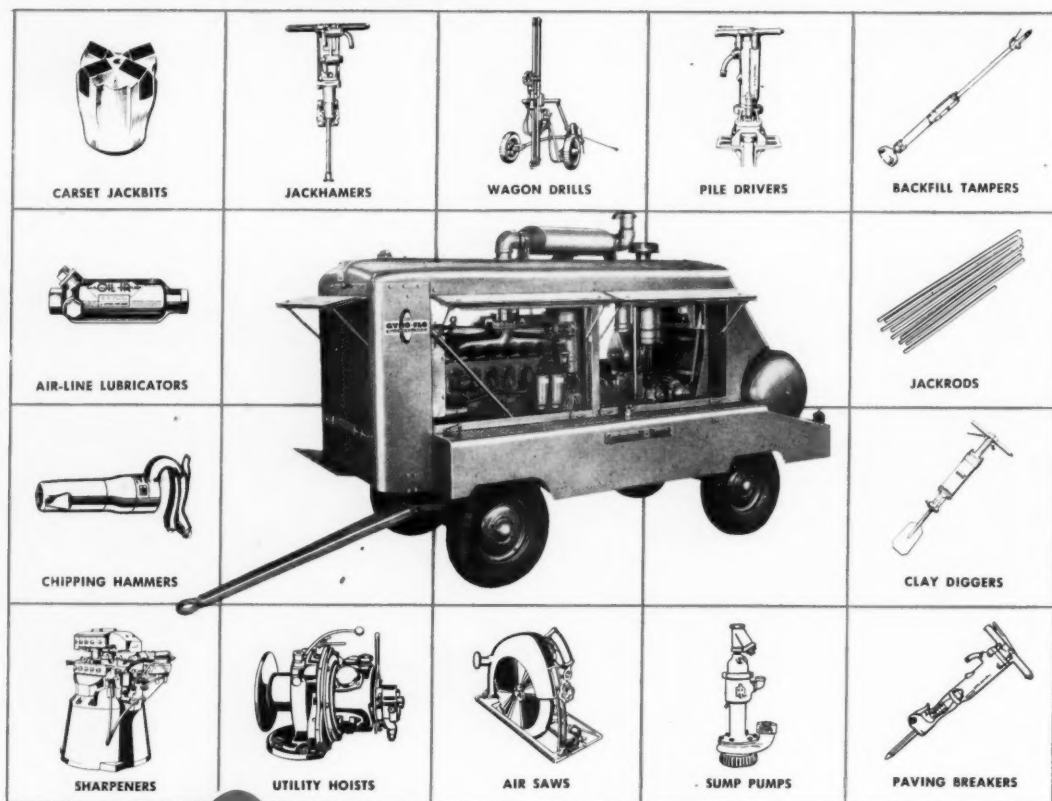
Also builders of Coal and Ore Bridges,  
Bulk Material Unloaders, Grab Buckets,  
and Specially Designed Machinery



**Cutting the Corners**—Rather than form around this storm sewer catch basin when laying the asphaltic concrete pavement, Trumbull Construction Co., Pittsburgh, Pa., paved this black top extension of McKnight Road in Allegheny County, Pa., then came back later to trim the edges to neat lines with a Model J-T Cutcrete saw.



**Tunnel Lining**—Steel tunnel liners, 26 feet in diameter, are handled by a Lima crane at work on the construction of a tunnel at Palisades Dam near Boise, Idaho. Power for the crane is supplied by a Caterpillar diesel D17000 engine. The work is being done by the American Pipe & Construction Co., Portland, Oreg.



# GYRO-FLO

Ingersoll-Rand Rotary Mobil-Air

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Heart  
of the  
CONTRACTORS'  
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887-14

The GYRO-FLO rotary compressor—most modern portable in the world—heads up Ingersoll-Rand's complete line of air power equipment for the contractor. The outstanding performance of units serving in every state in the U.S.A., and many countries abroad, has proven the dependability of the GYRO-FLO advanced design.

Here's what's different about GYRO-FLO compressors. They have no valves to leak—no pistons, rings, rods or clutch to wear out. Discharge pressures are held between 100 and 110 psi throughout the entire capacity range of the machine. This means maximum efficiency in the operation of rock drills and air tools. And discharge temperatures are at least 100° lower than with other compressors, assuring longer air-hose life.

Over 75 years of experience in building air power equipment goes into every Ingersoll-Rand machine. Put this experience to work for you. Contact your nearest I-R distributor or branch office for details on the application of the Contractors' Combination to your job.

## Ingersoll-Rand

11 Broadway, New York 4, N. Y.

### Slab of Old Road Will Be Preserved in New Surface

A 5-foot square of the first concrete pavement in New Jersey will be imbedded into the new pavement which is to be laid over the 40-year-old road this spring. It will be cut from the old road before reconstruction begins, set aside until the work is sufficiently advanced, and then placed in the new 9-inch reinforced-concrete surface.

The old road is on Route 24 near New Village in Warren County. It is part of the main artery from Phillipsburg, N. J., to Washington, D. C.

First opened to traffic in 1912 when there were only 43,000 vehicles registered in the state, the old highway is now carrying a daily average of 5,500 cars and trucks. Reconstruction became necessary due to the clogging of storm drains which allowed water to seep through the cracks in the pavement. This caused the road to heave and become bumpy when the water froze in the winter.

The road has served to provide highway engineers with valuable lessons in construction. Built in 12, 18, and 24-foot-long slabs, the concrete developed longitudinal cracks which permitted the entrance of surface water. From this, the principle of incorporating a center joint in concrete pavements developed.

The ruggedly constructed old road has needed a minimum of maintenance. At the time the pavement was laid, the concrete had a compressive strength of 4,500 psi. In 1950, tests showed it to have a strength of 10,000 psi.

The reconstruction involves widening the present 18-foot pavement to

### GET the AMAZING FACTS

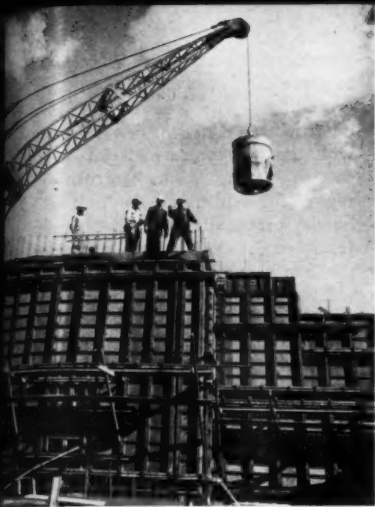
ON THE PATENTED TROUBLE-FREE BALL BEARING TURNTABLE

Exclusive WITH CRANES SHOVELS TRENCHES!

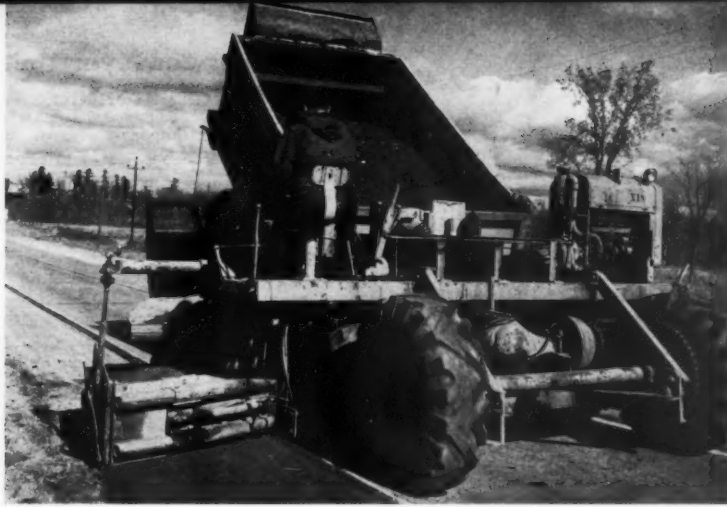
LITTLE GIANT CRANE & SHOVEL, INC. 1530 HOWARD DRIVE, DES MOINES, IOWA

CONTRACTORS AND ENGINEERS





**Concrete Pour**—A Car-Bro concrete bucket is lowered to Symons forms. Henry Carlson & Co., Sioux Falls, S. D., is the contractor.



**Replacing Shoulders**—Contractor Art Mann of Red Wing, Minn., uses a Model 80A-T Apso spreader to place stabilized gravel shoulder material on a stretch of U. S. 169 between Milaca and Onamia, Minn. The gravel replaces old sod shoulders which became unstable when the ground was wet.



**Road-Widening**—A P&H crane excavates for a retaining wall, part of a half-mile road-widening job in Vermont.

24 feet. The foundations of the old toll house, in use when the road was known as the Morris Turnpike, will be removed. The total cost of the reconstruction project will be about \$261,631.

### Machine Figuring Methods For Civil Engineering

■ A booklet dealing with the figuring problems encountered in road construction and intended as a guide to members of highway departments using the company's adding-calculators is offered by the Monroe Calculating Machine Co., Inc., Orange, N. J. The most recent edition includes explanations of figuring methods for several of the more usual kinds of general civil engineering computations, such as traverses. Diagrams illustrating the problems have been added, and there is an appendix which gives some of the formulas for solutions of right and oblique triangles.

The booklet is intended not only to assist engineers just beginning to operate the Monroe machine, but also to point out new and better methods to those more experienced in its application. The calculations have been described in simple terms and in such a way that they can be easily followed on any type of calculator made by the company. All the figuring examples call for a calculator having a capacity of 10 columns on the keyboard and 20 places in the result dials, since this is the machine generally found in engineering offices.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 580.



## Why waste a shovel on a job like this?

At this Lannon-stone quarry, Lannon, Wis., Minneapolis-Moline RTI Wheelers remove overburden to release expensive shovels for bigger shovel-rated jobs. Result: Wheelers match production, cut operating costs, free shovels to remove heavy stone slabs locked deep in the earth.

With its high-strength construction from radiator to drawbar, front axle conservatively rated at 5000 lbs., greater maneuverability, lower cost per weight and power, the RTI removes spoil at far less cost than would ever be possible with heavier, more expensive equipment.

This is the kind of a job where extra MM quality really pays off. Heaviest industrial-type engines, clutches and transmissions offer continuous-duty

operation at full-rated power. The extra weight and rigid single unit design of MM RTI Wheeler loaders permit maximum digging and crowding performance.

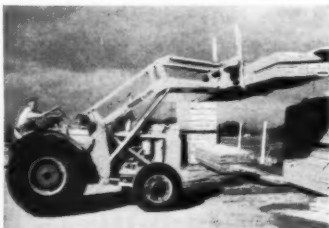
If you are using big equipment where the low-cost MM Wheeler could save you money, contact your MM dealer-distributor at once. Let him show you why MM Wheelers just can't be matched for performance, for capacity, for money saved.



**MINNEAPOLIS-MOLINE** MINNEAPOLIS 1, MINNESOTA



Whenever you compare MM Wheelers with any industrial tractor, be sure to compare the clutch. The 14" UTIL Wheeler clutch is rated at 640 torque-pounds-feet, while the engine develops 233 torque-pounds-feet at 1060 rpm. This load ratio is typical of the performance reserve you get when you buy a Wheeler.



Way up and way out! Rigid construction and extra weight of both 30 hp. RTI and 57 hp. UTIL Wheelers permit solid frame for greater lifting weight, longer dumping reach.



Forget tight spots. With this high-reach, side-dump-loader bucket, you can operate in closest quarters, cut maneuvering to an absolute minimum.



Complete line of loader attachments makes Wheelers pay on every job. The right attachments handle loose, bulk or palletized material with equal economy.

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The Model 600 Power-Pack ditch-filling unit consists of a towed hopper and conveyor.

## Hopper-Conveyor Unit For Filling Trenches

■ A towed hopper-conveyor unit that fills trenches, curbing, ditches, and pipelines on construction jobs is announced by the Power-Pack Conveyor Co., 13910 Aspinwall Ave., Cleveland 10, Ohio. The Model 600 is powered by an 8-hp gasoline engine that drives a 14-inch-wide conveyor belt. Controls are located at the operator's platform for easy adjustment of belt speed, amount of material fed through the bottom openings of the hopper, and placement of the fill material. Maximum capacity is 3 tons per minute and maximum belt speed is 500 feet per minute.

The hopper-conveyor is towed by the truck that dumps material into the hopper feeding the belt. An ad-

justable deflector makes it possible to place the material without waste or spillage. The speed of the towing truck and conveyor belt, together with the amount of material being carried by the truck, controls the rate of fill delivered. The unit will handle practically any fill material from sand, cinders, and crushed stone to heavy clay.

The conveyor may be removed to permit the hopper to be used as a spreader while the conveyor section is used as a separate material-handling unit. Two of the unit's wheels are mounted on swivel axles so that it can be towed from job to job by car or truck.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 546.

## Hydraulic Power Tools For Wire and Rod Cutting

■ Portable hydraulic tools for cutting wire rope, chain, steel rods, and power cable are shown in a booklet from the Manco Mfg. Co., Bradley, Ill. Guillotine models are made up of two units: the basic hydraulic cutting unit and a pump.

The Series 10 and 15 latch-type cutters described are used for wire rope up to 1 1/4 and 1 3/4 inches thick, respectively. The Series 20 C-frame open anvil-type units that provide up to 30 tons thrust will cut up to one-inch-thick chain, rod, hex-shape, or square material. The Series 30 units cut through all types of lead-sheathed power cable and armored cable up to 3 1/2 inches thick. The literature gives complete specifications on a variety of models made in each type and gives details on pump assemblies available.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 603.

## Electric-Power Sets And Diesel Engines Rated

■ A new Caterpillar booklet includes the story of how the company rates its diesel engines and electric sets. The booklet also features on-the-job photographs of the equipment on construction and mining operations.

Detailed charts show the rated horsepower of all Caterpillar diesel engines and the kilowatt output of all electric sets made by the company. The booklet is available in English, Spanish, French, and Portuguese.

To obtain this literature write to the Caterpillar Tractor Co., Peoria 8, Ill., or use the Request Card at page 18. Circle No. 550.



**LOOK JOE! SAW SMOOTH — STRAIGHT OPENINGS**  
for PATCHES & TRENCHES with a ... **Clipper**  
**SAVE TIME — MATERIAL — MONEY by**  
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Save up to 50% in labor and material. Saw repair patches — water, gas, sewer and air line trenches in floors, streets, walks and highways ... eliminate costly hand forming and spalling.

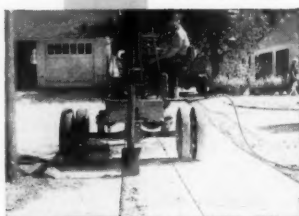
"4 OUT OF 5" BUY CLIPPER CONCRETE SAWS. Three-Point Suspension (see below) ... the Patented Water Application which increases blade life and speed ... perfect balance and dashboard controls for operating ease and maneuverability — these are the reasons WHY — "4 OUT OF 5" Buy Clipper!



Only minimum replacement material needed and is poured to straight, smooth edges.



Sawed lines confine breakout fracturing and speeds removal up to 50%.



Contraction joints in floors or streets eliminates spalling, 50% less seal and are maintenance-free.



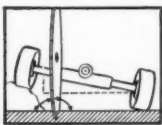
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10 DAY DELIVERY

CONTRACTORS AND ENGINEERS



## Spend \$1.5 Million on N. J. Snow Removal

APPROXIMATELY \$1,500,000 is spent by the New Jersey State Highway Department annually to keep the Garden State's roads free from snow and ice. The task of cleaning a state-wide snowfall from the roads is equivalent to plowing a two-lane highway across the country from Newark, N. J., to California.

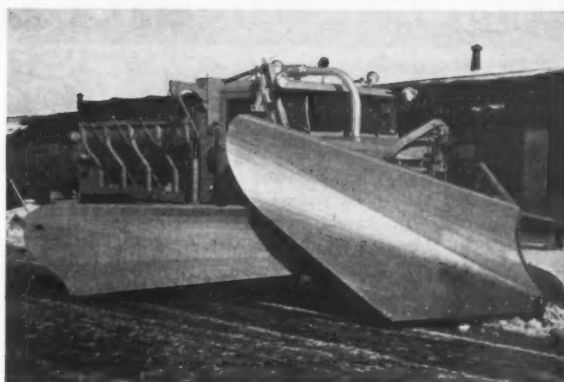
Operating on the theory that there is no such thing as a mild winter, the department's snow and ice control fleet moved from the Fernwood maintenance and repair shops in Trenton in mid-October and headed for 145 strategic locations throughout the state.

Newly refurbished with bright yellow paint, oiled, and gassed up, the fleet of trucks, with their plows and other equipment loaded, were

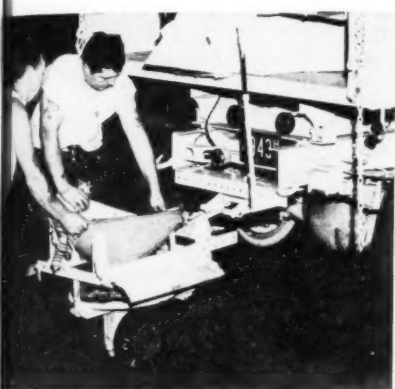
private contractors using an additional 221. There are 221 light trucks with plows.

The department has 17 jet cinder spreaders equipped with plows and 15 wing plows. Six new abrasive loaders have been added to the fleet, making a total of 47 now in operation. Four rotary plows, each capable of throwing snow from 20 to 50 feet to the side of the road, complete the fleet.

THE END



Walter truck equipped with a V-plow and wing is ready to go into operation on a New Jersey highway.



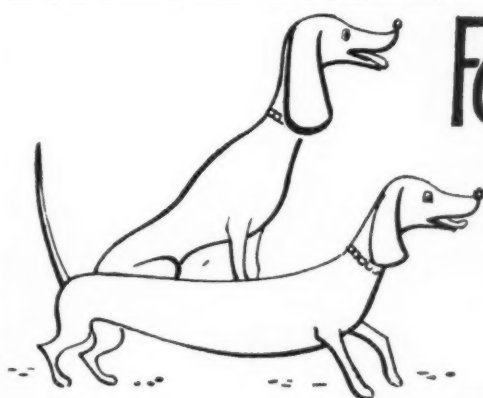
Two workmen attach a centrifugal sand spreader to the rear of a Mack truck.

spotted over the countryside in places where they could be made operative at a moment's notice. With traffic on New Jersey's roads averaging 10,000 cars per day per mile, as contrasted to the national highway average of 1,570 cars, the program of snow removal and ice control has become of greater importance each year.

Even though weather conditions have been comparatively mild during the past several winters, 71 pieces of equipment have been added to the fleet so that the motorist can not only travel in safety but can also reach his destination in good time.

Icing conditions are a serious problem. Much of the winter's work is directed to the spreading of 50,000 cubic yards of cinders, sand, and stone grits—the abrasive materials used to keep vehicles from skidding. Should a storm of state-wide proportions develop, the department is ready with 2,400 men to operate the equipment and can place 619 plows of all types on the roads. This includes state-owned plows attached to trucks owned and operated by private contractors.

The largest increase in equipment added for this winter's battle was in cinder-spreading attachments for trucks. A dozen new pieces were added to bring the present total up to 295. Plows for medium and heavy trucks number 143, with



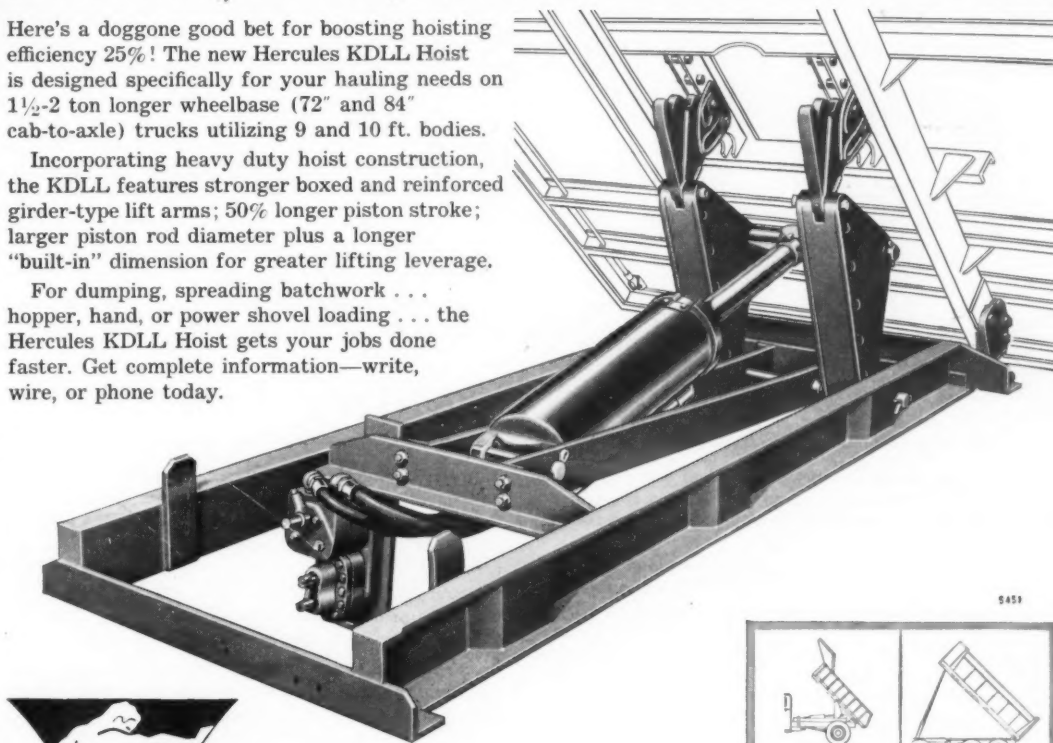
# For Your Long Wheelbase Jobs!

*Specifically*  
**New Hercules KDLL Hoist Engineered for 9 and 10 Ft. Dump Bodies**

Here's a doggone good bet for boosting hoisting efficiency 25%! The new Hercules KDLL Hoist is designed specifically for your hauling needs on 1½-2 ton longer wheelbase (72" and 84" cab-to-axle) trucks utilizing 9 and 10 ft. bodies.

Incorporating heavy duty hoist construction, the KDLL features stronger boxed and reinforced girder-type lift arms; 50% longer piston stroke; larger piston rod diameter plus a longer "built-in" dimension for greater lifting leverage.

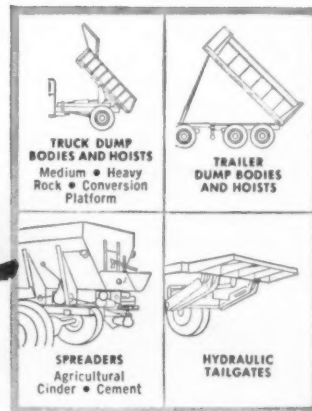
For dumping, spreading batchwork . . . hopper, hand, or power shovel loading . . . the Hercules KDLL Hoist gets your jobs done faster. Get complete information—write, wire, or phone today.



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# Names in the News

## The Moles Announce Achievement Awards

The presidents of a New York City and a Dayton, Ohio, construction company have been named as the recipients of the annual awards given by The Moles, 11 W. 42nd St., New York 36, N. Y., a society of leading figures in the heavy construction industry, for "outstanding achievement in construction".

J. Rich Steers, president of the New York City firm bearing his name, and Glenway W. Maxon, president of the Maxon Construction Co. in Dayton, are the 1954 award designees.

J. Rich Steers, president of the J. Rich Steers Construction Co., New York, N. Y., and right, Glenway W. Maxon, president of the Maxon Construction Co., the holders of The Moles annual awards for 1954.

The awards, considered the highest recognition that can be accorded service to the American construction industry, go annually to one non-member and one member of the



society. The series started in 1941 and numbers former president Herbert Hoover; Robert Moses, New York City park commissioner and construction coordinator; Adm. Ben

Moreell; and Gen. Brehon B. Somervell among its recipients.

Mr. Steers has been president of J. Rich Steers, Inc., since 1936. His firm has been very active in government construction in the United States and overseas during the past 14 years. The company has performed approximately \$250,000,000 worth of construction since 1947. It built three large sections of the East River Drive in New York City and was responsible for the rebuilding of Shipways No. 2 in the Navy Yard at Brooklyn, N. Y., from which the "Missouri" was launched.

Mr. Maxon formed his company in 1928. Since then, the firm has completed approximately \$700,000,000 worth of construction and has another \$200,000,000 in current obligations.

Dams, locks, and bridges, principally on the Ohio and Mississippi rivers and their tributaries, have figured most prominently in the Maxon schedule, though the company's crews have ranged all the way from the east coast to Nebraska, and from the Great Lakes to the Gulf of Mexico. Defense plants, inland shipyards, towboats and barges, and installations for the Atomic Energy Commission are also among its works.

## ACI Appoints Maples

William A. Maples has been named secretary-treasurer of the American Concrete Institute, Detroit, Mich., a technical society promoting better practices in concrete work.

Mr. Maples has been a member of the staff of the institute for the past five years as associate and managing editor of the *Journal of the ACI*. He has been acting secretary-treasurer for some time.

A chemical engineering graduate of Michigan State College, Mr. Maples worked for the Ford Motor Co. and the Dearborn, Mich., Department of Public Works. During World War II, he was attached to the publications department of the Engineer School at Ft. Belvoir, Va.

## Smith Appointed by CCI

The Calcium Chloride Institute of Washington, D. C., a research and information service, has appointed Harry A. Smith as field engineer. He will provide engineering service for users of calcium chloride in the northcentral states area.

Mr. Smith was formerly with the Chicago North Shore & Milwaukee Railway Co. in the way and structure department. He has also had experience in the laboratory and in field engineering.



SEAMAN Self-Propelled TRAV-L-PLANT pumps a controlled supply of water or bituminous material from a tank truck, meters it and applies it through spray bar directly into materials during mixing process. Idaho soil-cement stabilized highway.



(Left) Same job as above. SEAMAN Self-Propelled MIXER (without pumping equipment) is used to supplement mixing operations; is also used to mix-in water for previous pre-wetting operations.

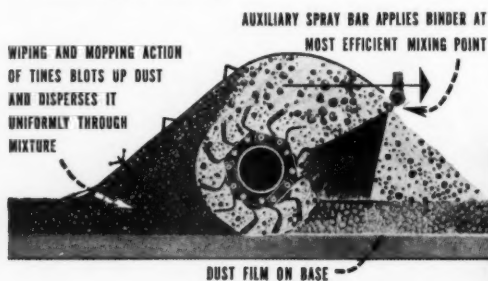
*Saves mixing time  
and water waste  
with "CONTROLLED MOISTURE"  
during processing*

Water is often expensive. When you figure the cost of transportation to the job and the cost of down-time when tank trucks do not arrive when needed.

In any stabilization requiring added moisture the SEAMAN TRAV-L-PLANT conquers the cause of greatest water loss — evaporation. During processing the TRAV-L-PLANT pumps water from the tank truck through a spray bar positioned just ahead of the mixing rotor so that the moisture is applied directly into the materials while they are being mixed. A volumetric meter

indicates the gallonage applied as well as the gallonage in flow at any given moment. Further, the rate of flow is controllable while the TRAV-L-PLANT is in operation so that changes in moisture requirement are instantly met. No slow penetration, no areas too dry or too wet. The water is uniformly incorporated.

Mixing depth is also accurately controlled to meet the rigid requirements for stabilization that are essential to obtain uniform flexibility and load-bearing value in the base.



This 12-page SEAMAN Bulletin illustrates mixing methods, shows many job scenes and completely describes SEAMAN TRAV-L-PLANT and Seaman Self-Propelled MIXER. Write for your copy of Bulletin TPS — today.

**SEAMAN  
MOTORS  
Inc.**



282 N. 25th STREET  
MILWAUKEE 3, WISCONSIN



### DRI Names Division Head

The Denver Research Institute of the University of Denver, Colorado, has named Dr. Jacob M. Schmidt head of the physics division of the institute, which provides a place where persons and organizations may bring engineering problems for solution. He will administer research projects for business, government, and industrial research sponsors. He succeeds Dr. Thomas Zandstra who has been transferred to the position of senior consultant.

Dr. Schmidt was formerly with the A. O. Smith Corp., Milwaukee, Wis. Before that, he was engaged in research at the California Institute of Technology and at the U. S. Naval Ordnance test station in Pasadena, Calif.

### CIB Re-Elects Corbetta

The Concrete Industry Board of New York City has re-elected Roger H. Corbetta, president of Corbetta Construction Co., Inc., chairman for a third term. William J. McIntosh, district engineer for the Portland Cement Association, was elected secretary, and Dugald J. Cameron, president of the Concrete Reinforcing Steel Corp., was re-elected treasurer.

The board, organized three years ago for the purpose of improving the quality of reinforcing concrete construction, is composed of representative firms, including contractors, architects, engineers, testing laboratories, manufacturers, and dealers.

### Ohio Highway Changes

Four deputy directors have been named to head the newly created divisions of the Ohio Department of Highways, Columbus, Ohio. The reorganization is a result of legislation recently instituted by the State Senate.

The executive secretary to Gov. Lausche, John W. Keefe, has been named to head the Division of Business Administration. A Cincinnati lawyer, Mr. Keefe has been a member of the governor's staff since November, 1949. Prior to that, he served as secretary of the state's

Industrial Commission for 11 months.

John J. Heier, the highway department's chief engineer of the Bureau of Planning and Programming since November, 1952, has been elevated to head the Division of Planning and Programming. He received his degree in civil engineering from Ohio State University in 1922 and joined the Ohio Department of Highways in 1927.

The Division of Maintenance and Traffic Operations is headed by C. W. McCaughey, a member of the highway department since 1931. He graduated from Ohio Northern University as a civil engineer in 1929. H. F. Gerold heads the Division of Design Construction. He is president of the H. F. Gerold Construction Co. and is a retired rear admiral. Mr. Gerold is also a civil engineering graduate of Ohio Northern.

### Maj. England Appointed To Supervise Pipeline

Construction of the 621-mile Haines-to-Fairbanks pipeline, which will carry liquid fuels from the port of Haines in southeast Alaska to military bases in the interior, is under the supervision of Maj. John E. England. He represents the Corps of Engineers on the \$29,000,000 job.

Maj. England has been with the Alaska District Corps of Engineers since April, 1948. He has been project officer of AC&W projects in Alaska and will continue in this capacity as a secondary duty. He and his Engineer Corps staff maintain headquarters in Haines.

Contract for the multimillion dollar project was awarded late in October, and initial work started at the end of November. Its completion is scheduled for September, 1955.

### Spatz Is Project Engineer

The firm of Michael Baker, Jr., Inc., Rochester, Pa., consulting engineer, has appointed Ralph L. Spatz as project engineer. He will be assigned to projects in industrial planning and development at the Keystone office of the firm in Beaver Falls, Pa.

Mr. Spatz recently completed 43 years with Koppers Co., Inc., where he was chief engineer of the chemical division.

### Gehring Named Director

Wire Reinforcement Institute, Inc., National Press Bldg., Washington 4, D. C., has named Donald M. Gehring assistant director. WRI is an organization designed to promote the use of welded wire fabric in reinforcing many types of concrete structures and highways.

You can't compete  
if your  
equipment is obsolete!

With construction activity becoming more competitive, even in the face of high labor costs, it is more important than ever before to take a closer look at your operating costs . . . your dirt moving methods . . . your tools and equipment.



many material producers and contractors, both large and small.

If you are already "PAY-LOADER"-equipped, you'll be pleasantly surprised at the superior performance of the late model "PAYLOADERS". Although

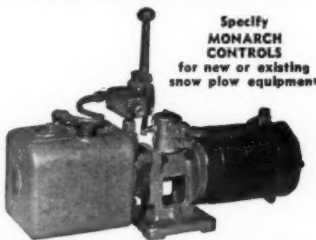
Obsolete methods and equipment take a heavy toll by slowing down output, increasing manhours and increasing repairs and maintenance. Efficient material handling equipment can make the difference between profit and loss on most any job . . . help insure that time and production schedules are met without resorting to expensive overtime and wasteful emergency practices.

If you are not using "PAYLOADER" Tractor-Shovels at present, it will pay you to investigate these fast, flexible, rubber-tired loaders that have proven so profitable for so

"PAYLOADERS" are built to give thousands of hours of dependable service, constant research and engineering improvements keep them out in front in design, construction and performance.

Now is the time to trade in obsolete equipment—to modernize your methods to meet present day conditions—to assure profitable operation in spite of closer competition. Your nearby "PAYLOADER" Distributor will gladly demonstrate any of the new models. The Frank G. Hough Co., 762 Sunnyside Ave., Libertyville, Ill.

### POWER HYDRAULICS FOR SNOW PLOWS



- Type H.E.P. "Dyna-might" Electric Power Control
- Fits all trucks
- Available for 6 or 12-volt systems
- Fan Belt Driven Models also available
- Write Hydraulic Division



MONARCH ROAD MACH. CO.  
324 North Front Ave., Grand Rapids 4, Mich.  
JANUARY, 1954

**PAYLOADER**  
THE FRANK G. HOUGH CO. • Since 1920



## Aeroil Appoints Manager

Aeroil Products Co., Inc., South Hackensack, N. J., has appointed Charles Klevis as Pacific coast

manager. Having spent a number of years as manager of Aeroil's Seattle, Wash., branch, Mr. Klevis will supervise west coast sales from the Seattle office.

## Revolutionize With The New "PILERAMMER" DIESEL PILE HAMMERS

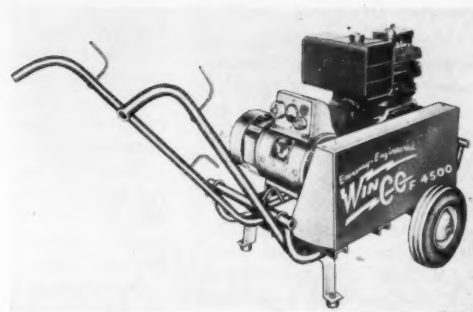
Advantages — MORE PROFITS

- MOBILITY—Easily Mountable
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- ECONOMICAL OPERATION
- DEPENDABLE—Long Economical Life
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- POWERFUL
- PILE DAMAGE MINIMIZED
- SHOCK-FREE—Mass Alignment
- LOW CAPITAL INVESTMENT
- MODEL 1—18,000 Ft. Lbs. Output
- MODEL 2—7,500 Ft. Lbs. Output
- IMMEDIATE DELIVERY
- NOW MANUFACTURED IN U.S.A.

Write for Circulars — Dealer Inquiries Invited

**MTP COMPANY OF AMERICA**

14031 HUSTON STREET  
SHERMAN OAKS, CALIF.



## Portable Generator Has Larger Capacity

■ The continuous operating capacity has been stepped up on the contractor's model engine-generator made by the Wincharger Corp., Commerce Bldg., Sioux City, Iowa.

The increase has been from 2,500 to 3,000 watts, with a motor-starting capacity of 4,500 watts. The new Winco F Series Model F4500 supplies alternating current at 115 volts, 60 cycles, single phase.

A belted feature permits the user to run the engine at the best recommended speed and the generator at 3,600 rpm. This provides maximum engine life and gives greater smoothness and steadiness of output.

The units are made with a universal mounting base so that any engine can be used. The Briggs & Stratton and Wisconsin engines available are four-cycle power units. Uses suggested by the company for the portable generators include operating flood-lighting, electric tampers, chain saws, table saws, portable tools, and impact tools.

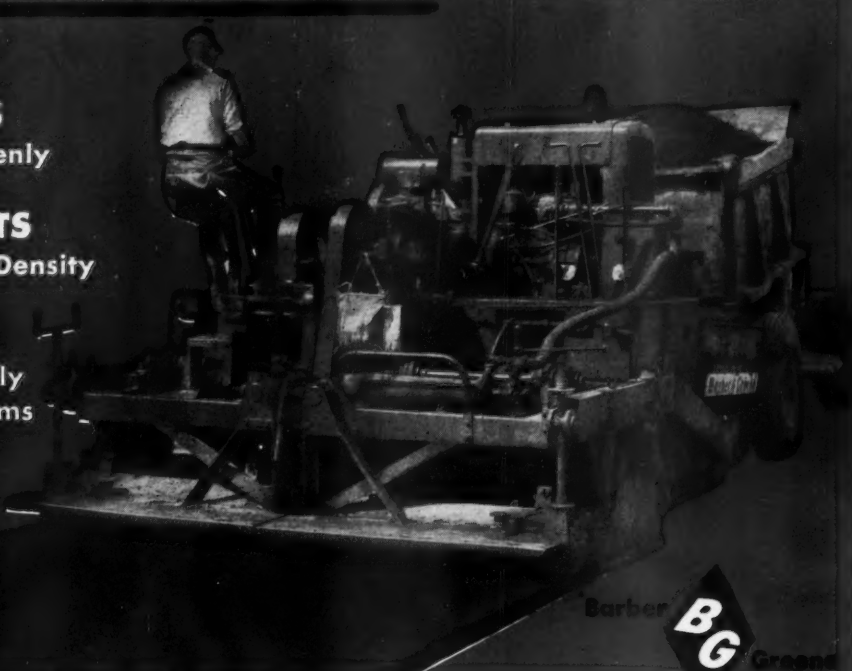
For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 563.

# "MAGIC-CARPET" MAKER

**SPREADS**  
Material Evenly

**COMPACTS**  
to Uniform Density

**LEVELS**  
Automatically  
Without Forms



## THE BARBER-GREENE TAMPING-LEVELING FINISHER

When the job calls for the highest quality bituminous surface, you'll do it best with the B-G Tamping-Leveling Finisher.

With this superbly designed machine, you are able to lay every type of mix—hot or cold—from clay stabilized gravel to high-type sheet asphalt. Whatever type mat you are laying, the B-G Finisher automatically measures the correct amount of compacted material—then simultaneously tamps, levels and strikes off to produce a ripple-free surface that is maintained under rolling and

traffic. Because the material is compacted while it is being laid, you are assured of a surface of uniform density. And with the B-G leveling principle you compensate even for abrupt changes in the subgrade.

It will pay you to investigate this unequalled, universally preferred method of paving streets, highways, runways, parking lots, tennis courts and similar jobs. You will learn, for example, how the B-G Finisher saves truck time, minimizes rolling and reduces the size of crew. Investigate today!

# Barber-Greene

Aurora, Illinois, U. S. A.



## UHF Mobile Radio Sets

■ A mobile two-way radio and a desk station, both designed to operate in the 450-470 megacycles ultra-high-frequency band recently assigned by the FCC, are described in literature from the Radio Corporation of America, Front and Cooper Sts., Camden 2, N. J. This communications equipment provides new facilities in areas where the VHF band is already crowded and where the new UHF allocation provides new communication channels.

The RCA Type CMU-10A mobile transmitter-receiver is a frequency-modulated unit housed in a draw-type steel case with a removable cover. Other components are a loud speaker with mounting clips, a control unit and palm-type microphone, and a roof-mounted stainless-steel 6-inch antenna. Six and 12-volt models are available.

The CSU-20A desk-type unit, housed in a compact cabinet, has a self-contained power supply and plugs into any conventional 117-volt ac outlet. It is designed to accommodate four-frequency operation when required.

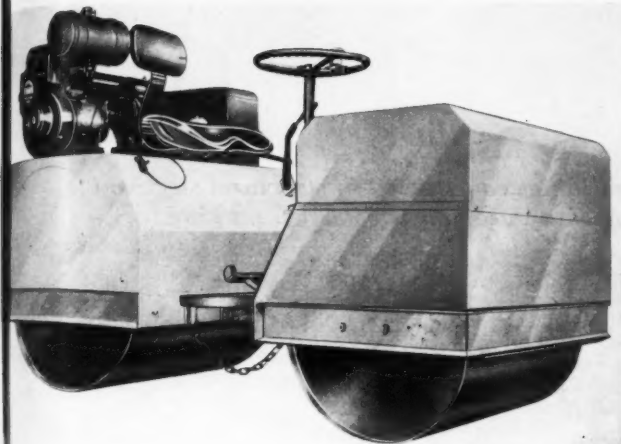
To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 594.

## U. S. Rubber News

Recent appointments at the U. S. Rubber Co., Rockefeller Center, New York 20, N. Y., include J. J. Davison, who has been named manager of truck tire sales for the Fisk-Gillette tires division; A. G. Richtmyer, who has been made district manager at Portland, Oreg.; and R. P. Buis, who has been appointed district manager in Kansas City, Mo.

CONTRACTORS AND ENGINEERS





### New 1-Ton Roller

■ A 1-ton roller with 56-psi compaction is announced by Gabb Special Products, Windsor Locks, Conn.

This company originally entered the roller field in 1949 when it developed the half-ton Motoroller, a general utility roller used by bituminous contractors for small jobs in confined areas. The company will continue to manufacture this machine to meet the needs of parks, schools, towns, and landscapers.

The same features of the half-ton unit are incorporated in the heavier 1-ton roller, with special emphasis on maneuverability as well as ease of transportation from job to job.

Other features of the larger model are a newly designed center-poise hookup that improves tracking of the front and rear rolls, geared steering through a split-front drum, and a low center of gravity for working on grades and slopes. A compact frame structure has a minimum of overhanging on the side for close rolling. Water ballast permits weight variance. The roller is powered by an air-cooled engine and has a forward-reverse transmission with external adjustments.

For further information write to the company, or use the Request Card at page 18. Circle No. 564.

### Booklet on Water Hose

■ A variety of water hoses for high and low-pressure service is illustrated in literature from the Quaker Rubber Corp., a division of H. K. Porter Co., Inc., Tacony and Comly Streets, Philadelphia 24, Pa. The booklet contains photographs and cutaway drawings of the various hoses as well as tables of sizes, working pressures, and weights. Types of hose construction, lengths, couplings, and recommended applications, including building uses, are discussed.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 623.

### Rubarite Plant Opens

A new organization, Rubarite, Inc., has opened facilities near Malvern, Ark., for the production of Rubarite, a synthetic rubber powder used in rubberized asphalt paving. The plant is jointly owned by the Goodyear Tire & Rubber Co., The National Lead Co., and Bird & Son, Inc.

### New Quarters for Branch Of Economy Forms Corp.

The Metuchen, N. J., district office of the Economy Forms Corp., Des Moines, Iowa, has moved to a

new building at 149 Central Ave. T. W. Brotherton is district manager, with Herold Crume and Ken Burnett as sales engineers. Verne Nourse is in charge of field services and Glen Rold handles the shop.

**Buy Direct from Factory!**  
**CONCRETE SMOOTHIE**

**LIGHT WEIGHT**  
Handles big and little jobs easily!

**Concrete Finisher**

*"Handiest item any concrete contractor can own!"*

- Powered by 2 HP gear-reduction Lawson motor
- Adaptable to any width. Pictured here with 12 ft. runners
- Easy back and forth motion does beautiful work

**All Machines Guaranteed!** **\$134.00**  
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**COLUMBUS STEEL FABRICATING CORP.**  
COLUMBUS, NEBRASKA

early planning  
builds the **SALE**  
that **SELLS**



**FORKE BROTHERS AUCTION**

A successful equipment sale requires careful planning, and it takes experience to plan it. Forke Brothers, with more than 30 years of experience, know how to plan, promote and execute your sale properly . . . to make more money for you.

Proof of Forke Brothers' skill at getting ACTION through a PLAN of AUCTION is found in the fact that during 1953, this firm sold over 3,000 major pieces of equipment, plus innumerable smaller items, all at top prices.

Forke Brothers handle all details, in-

cluding advertising and promotion, actual selling, and complete clerking.

Hit the active spring construction equipment market with an early auction. Get a PLAN of AUCTION from Forke Brothers, recognized leaders in the field.

Write, Wire or Phone for Complete Information. No Obligation

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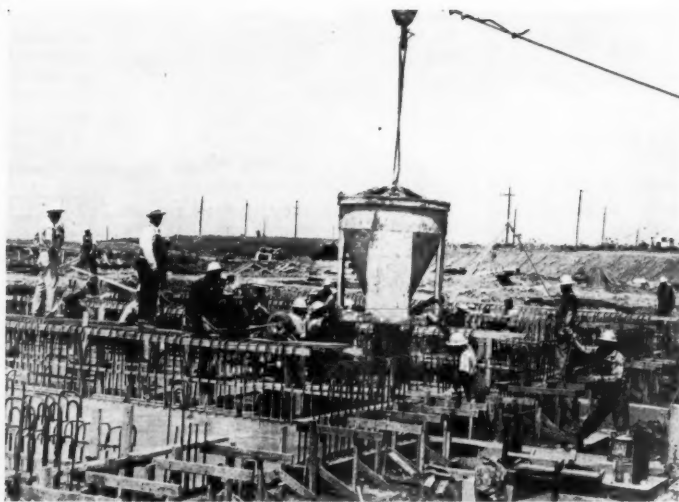
DEAN FORKE DON FORKE

HERB FORKE

E. W. FICKE

# Reinforced Concrete For Aluminum Plant

Only larger buildings constructed of structural steel and aluminum; blacktop used on pavements, parking lot



A 2-yard Gar-Bro bucket in the midst of a pour at one of the reinforced-concrete buildings.

THE ALUMINUM REDUCTION plant at Arkadelphia, Ark., will soon increase the annual production capacity of the Reynolds Metals Co., Richmond, Va., to 829,000,000 pounds. Completed late last year, the new plant has a capacity of 110,000,000 pounds of aluminum and employs 400 people.

The structure is known as the Robert P. Patterson plant, in honor of the late former Secretary of War. Judge Patterson was a director and general counsel for Rey-

## GET BETTER RESULTS WITH GLEDHILL EQUIPMENT

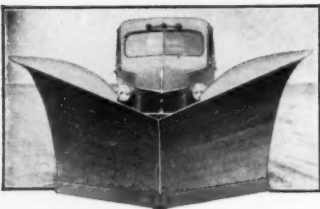
*Through Many Years—For Many Reasons*



A very satisfactory, sturdily built machine for shoulder maintenance and patrol work. Strike-off blade increases effectiveness and versatility.



This roadside weed sprayer is a self-contained, towed unit with separate hand boom and 50' hose. Chemical control is easy, effective and economical.



This V-Plow heads a line of 23 models—including V's, one-way, reversible. They are standard equipment on many state highway departments—proof of performance and preference.



The 2 1/2 yd. size (illustrated) can be pulled by any wheel or small crawler type tractor. Front dump type—hydraulic controls. The 1 1/4 yd. size equipped with either manual or hydraulic control.

**Get the facts — and you'll get Gledhill !**

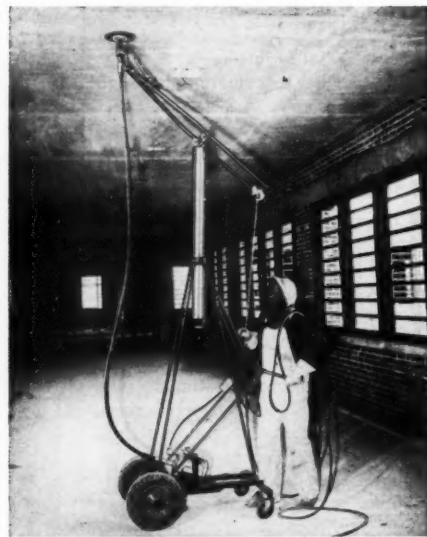
Reputable distributors interested in handling the Gledhill line are invited to see our representatives at the Waldorf-Astoria Hotel during the A.E.D. meeting, January 31-February 4.

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## Rubbing Ceilings?

Do it **FASTER • EASIER •  
BETTER • CHEAPER**

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A  
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For Ceilings Up To 12 Feet

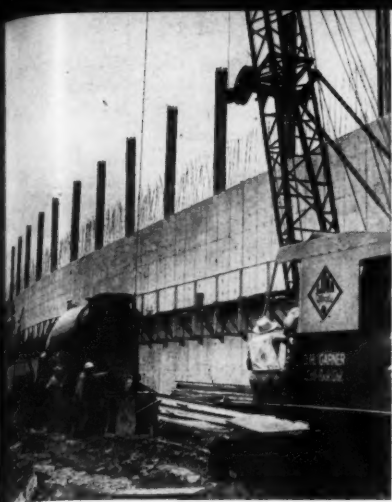
● With the grinding head automatically held against the ceiling at the proper pressure, the operator needs only to guide the machine.



**CONCRETE GRINDING CORP.**  
300 STRAIGHT ST. PATERSON, N. J.

CONTRACTORS AND ENGINEERS





A Smith 6-yard transit mixer unloads concrete into a 2-yard Gar-Bro bucket handled by a Lima Paymaster.



The Koehring 34-E Twinbatch paver. One of the six trucks in the batch fleet, all of which are equipped with Gar-Wood dump bodies, feeds material to the skip.

nolds at the time of his death in a New Jersey airplane crash.

The plant is located on a 780-acre site south of Arkadelphia, just off U. S. 67, the main highway between Little Rock and Texarkana. It consists of more than 20 buildings, as well as numerous other structures such as loading docks and storage tanks. It has a complete water filtration system, getting its water from the Ouachita River. Deep-drilled wells provided the water supply during construction.

While some of the larger buildings are of standard factory-type construction using structural steel and aluminum corrugated sheet, most are of reinforced concrete. The main structures, along with the storage tanks, paved courtyards, and bituminous-paved driveways, occupy an area 2,404 x 654 feet. There is 8,480 feet of bituminous pavement 20 feet wide, which includes a connection with the main highway. A 228-car blacktop parking lot measures 304 x 340 feet. There are black-

top pavements around many of the buildings. The bituminous surface for these areas was supplied by a central hot-mix plant.

The general contract was awarded in October, 1952, to the Ditmars-Dickmann-Pickens Construction Co., Little Rock, Ark., and the W. S. Bellows Construction Corp., Houston, Texas, who combined for the joint-venture operation under the name of Aluminum Constructors, Inc. The Midwest Construction Co., Tulsa, Okla., was a subcontractor

on pipe and mechanical work. The structural steel contract went to the American Bridge Co., a division of the U. S. Steel Co., and the electrical contract was given to Fagan Electric Co., Inc., Little Rock.

#### Site Preparation

W. D. Jeffrey Construction Co., Little Rock, had the contract for site clearing, excavation, and grubbing. Some of the debris was used in yard and embankment fills and,

(Continued on next page)

## The New, Improved H & B TYPE "T" Asphalt Plant



### Outstanding Efficiency In Both Production and Maintenance

Here, for the first time, is an asphalt mixing plant that gives you—in the basic plant—all of the major improvements and refinements of the past twenty years. An entirely welded structure, with no rivets and only a few bolts. Also, much of the loose bracing and miscellaneous pieces have been eliminated, making it possible to provide adequate working space and platforms with a minimum of pieces to move.

Other improvements include: all overflows are self-contained and internal in the bin; self-contained dust bin, which is an integral part of the bin structure; elimination of the screw conveyor normally used to

feed dust into the aggregate weigh-box, thereby making possible a lower original investment in plant, and assuring lower maintenance costs and decreased possibility of breakdown.

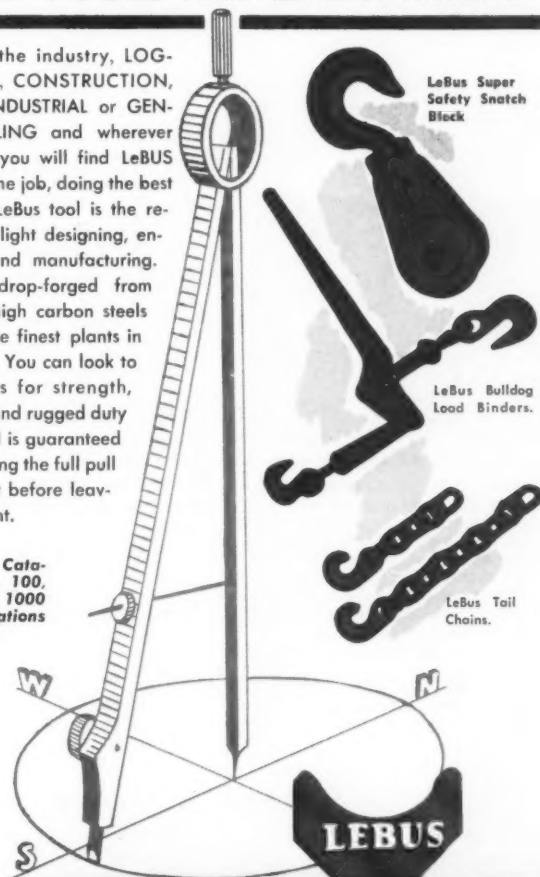
This new Type "T" plant has already proved its dependability and efficiency, with outstanding records in both production and maintenance. Available with all units driven by individual electric motors and completely wired, with gasoline or Diesel engines on the main units and electric drive on the smaller units, or with gasoline or Diesel drive throughout. Complete information will be furnished on request.

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Write for Catalog Pages 100, 450, and 1000 for specifications and prices.



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HETHERINGTON & BERNER INC.

America's First Builders of Asphalt Mixing Plants

731 KENTUCKY AVENUE

INDIANAPOLIS 7, INDIANA

JANUARY, 1954

113

## Reinforced Concrete For Aluminum Plant

(Continued from preceding page)

by efficient utilization of excavated materials, no borrow was necessary. Most earth slopes in excavations were finished at 1 to 1½ slopes, while most embankments were finish-sloped 1 to 2. Fills were compacted to 95 per cent of optimum moisture to conform to AASHTO T99-38 specification.

More than 2,000 bell-bottom piers were poured. Pier drilling was handled by the R. W. McKinney Drilling Co., Nacogdoches, Texas, which had as many as eight rigs on the job. McKinney started November 1, 1952, and finished May 1, 1953. The largest bell-bottom pier was two feet in diameter with an 8-foot 6-

inch bell. Depths ranged from 25 to 29 feet. The average pier was 1 foot 8 inches in diameter, 29 feet deep, and had a 3-foot 6-inch bell.

Foundation, footing, and substructure work was beset by rain and mud. Showers sometimes lasted as long as 10 days. The pumping spread included four 1½-inch and three 2-inch Jaegers, three 2-inch and one 3-inch Homelites, one 3-inch Marlow, and one 4-inch Gorman-Rupp.

### Compaction

Compaction and consolidation of earth fills around piers and floor subbase areas was an important phase of substructure work, as all fills had to test 95 per cent or better. Six Barco rammers, a Hydra-Hammer, and various pneumatic tampers were used in the compaction. The air compressor fleet consisted of seven Jaegers of 150, 365, and 315-cubic-foot capacity; a Gardner-Denver 315; a Schramm 315; four 315 Chicago Pneumatics; and two 155 Le Rois.

Most building forms were made of native lumber and plywood with wall forms using oiled ¾-inch plywood liners and No. 2 southern pine studding, with double 2x4's as a minimum requirement for wales. Most piers and machine foundations were formed with No. 2 planking, while many footings and the bell-bottom piers used natural earth for forms. Expansion joints, where specified, were premolded Flexcell ribbons ½ inch thick.

### Concrete Details

Concrete was handled with transit-mix trucks from a dry-batch plant and also mixed in a Koehring 34-E Twinbatch paver which had a 6-foot boom and a doublegated bucket. A Rex 27-F paver was used as a standby machine.

Aggregates were shipped from the Malvern Sand & Gravel Co., Malvern, Ark., in railroad cars. The sand and gravel hopper was a 160-ton Blaw-Knox, and the cement storage was in a 4,000-barrel round silo and a rectangular bin rated at 600 barrels, both Blaw-Knox. A 1½-yard Bay City crane with a 2-yard Blaw-Knox clamshell unloaded cars, stockpiled aggregates, and kept the hoppers filled.

Four transit mixers—two 6-yard Smiths mounted on International tandem dual trucks and two 4½-yard Challenges on White tandem duals—delivered the mix to the concrete forms. Six Ford and Chevrolet trucks with Gar Wood dump bodies made up the batch fleet serving the paver from the batch plant. Ideal portland cement was used.

Specifications for aggregates were:

Size	Per Cent Passing
No. 4	95-100
No. 16	45-80
No. 50	10-30
No. 100	6-10
Coarse Aggregate	
1½-inch	95-100
¾-inch	35-70
½-inch	10-30
No. 4	0-5

### Plant Floors

Floors were of four kinds: concrete with granolithic topping, concret monolithic, wood block, and brick. They required different specifications for base slabs, which were both earth-bearing and concrete-

poured over a 4-inch granular subbase, depending on location and use. The earth-bearing slabs were reinforced with 6 x 6-inch No. 6 wire mesh.

The concrete floors were mostly 6 inches thick, with some 8 inches thick. Many were monolithic with operating floors of colored concrete. All floors had a 6-inch minimum concrete base thickness which required different depressions below floor lines.

Concrete for tower walls was waterproofed by adding Anti-Hydro integral waterproofing compound to the mix at the rate of 1½ gallons per cubic yard.

### Pouring

On such a large concrete job, pouring took place at several different points at the same time. Con-

crete was supplied either by the Koehring paver or the rapidly shuttling transit mixers, with the dry-batch plant supplying the mix as required. A typical situation was the pouring of foundation forms for the primary water treatment plant.

A 3-yard No. 3000 Manitowoc Speedcrane with a 90-foot boom swung a 2-yard Gar-Bro concrete bucket from the delivery bucket of the Koehring paver to the waiting forms. This system was also used on other walls, piers, and footings. The paver was used conventionally when the large floor areas, which were handled like a highway job, were poured.

At the same time, on the other end of the job transit mixers dumped their loads in a 2-yard Gar-Bro concrete bucket on the line of a Lima Paymaster crane which used

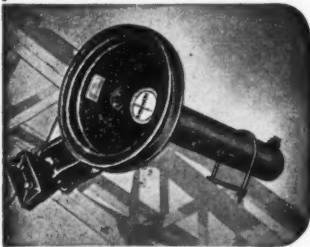
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ways  
to make  
crane  
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- Steel tagline holds magnet steady and absorbs the load... protective slack is maintained in expensive magnet cable to avoid jerking, pulling loose at the terminals or snagging.
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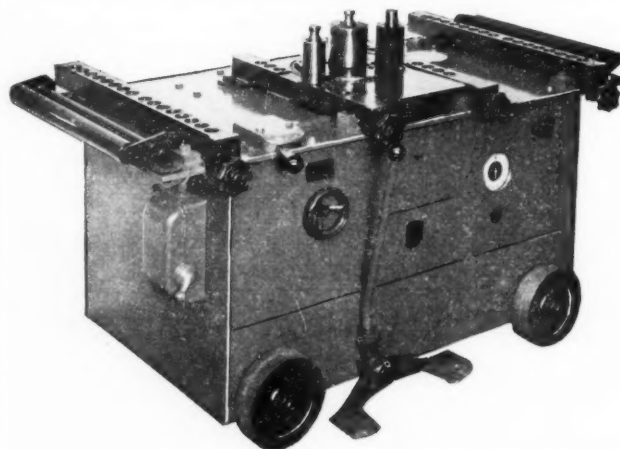
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## Automatic... Bar Bending Machine



This new Bending Machine features all the latest improvements called for in modern fabricating methods. Right and left-hand bends can be made without additional adjustment by means of a single control lever.

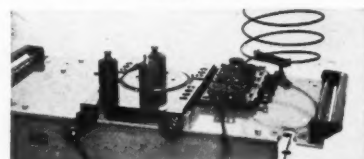
The variable speed drive is easily adjustable to suit any thickness of material assuring high operating efficiency even when handling light stock.

Automatic stop and return control provides maximum safety and uniform work.

Special attachments permit the bending of hooks and angles on slab, truss or offset bars. Also will bend spirals, rings and curves of any diameter and pitch.



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Spiral Bend



Large Double Bend



Multiple Double Bend



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CONTRACTORS AND ENGINEERS





The Hydra-Hammer, which was used for backfill and close-to-pier tamping. Compaction around piers and floor subbase areas has to test 95 per cent or better.

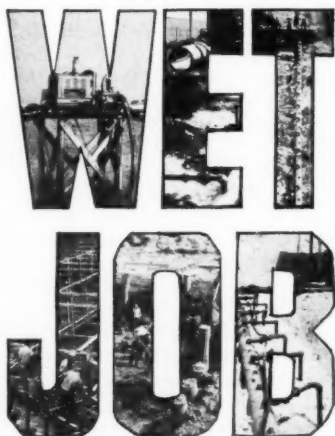
a 75-foot boom and a 15-foot jib to swing the bucket over a 30-foot poured concrete wall, then down to inside floor level for some equipment foundations. There were more than 15 Mall vibrators on the job.

#### Stripping and Curing

Wall forms were stripped after three days and slab beam forms, after seven. All pours, except floors and slabs, were covered with Kraft curing paper and kept wet for seven days. Class A concrete used 6½ gallons of water and was rated at 1,800 psi in seven days and 3,000 psi in 28 days. Class B used 7½ gallons of water and was rated at 1,500 psi in seven days and 2,500 psi in 28 days.

The prime contractor had two Lima Paymasters with 75-foot booms and 15-foot jibs; one 1½-yard Bay City with a 45-foot boom and clamshell hookup for the batch plant; one 3-yard Manitowoc No. 3000 with a 90-foot boom; one Bucyrus-Erie 15-B with a 50-foot boom and backhoe equipment; one ½-yard Model 41 Hanson dragline; and one No. 85 Byers backhoe.

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### Effect of Proper Distribution of Mass in Shovel-Crane Performance

by O. VON MEHREN\*



The operation of a power crane or shovel is essentially cyclical. It involves repeated accelerations and decelerations of parts or of the whole assembly. Therefore, the time interval of the operating cycle or the "speed" of the excavator is not dependent upon the acceleration or speed of any one function alone, but upon the interrelation of all functions and the proper proportioning and balancing of power and speed between them.

It is for this reason that the printed specifications of an excavator seldom are an indication of its "speed". It serves no purpose to have a very high hoisting speed, if the swing is so sluggish that the dipper is raised to dumping height long before the machine can be rotated to dumping position. Neither does it aid "speed" to have a high swing speed if the swing acceleration is such that the full swing speed cannot be realized on the partial and short swings that occur in actual operation.

One of the most important factors in the operation and "speed" of an excavator is the distribution of the mass of the machine because of its dual effect on (1) the forward external moments to which the machine is subjected and (2) its effect on the swing acceleration and speed.

To offset the forward or "tipping" moment of the machine, a balancing or rear moment is developed by the distribution of masses in the rear which involve primarily the location of machinery and counterweight.

In order to balance the forward moment, the rear mass (M) and its radius (R) may be varied in direct proportion to each other, i.e., a back moment (MR) can be obtained by any combination of M and R that give the same product.

When the swing operation comes into play, however, the swing time cycle, in its accelerating and decelerating phases, depends on the moment of inertia of the whole turntable, which is expressed as MR<sup>2</sup>; i.e., the accelerating and decelerating phases of a swing cycle vary in proportion to the square of the radius-R.

The proper balance between these two terms, MR and MR<sup>2</sup>, is what determines in the last analysis a satisfactory or unsatisfactory design. All other factors being equal, machines with light masses at large radii may be relatively light-weight machines but slow in swing cycle, unless unduly large accelerating swing torques are supplied. Conversely, a machine with heavy masses at short radii may adversely affect other functions even if it proves to have a faster swing cycle.

\*Chief Design Engineer, The Thew Shovel Co.

Aluminum Constructors had two Caterpillar D6's, two D7's, a TD-9 International, an Oliver Cletrac, a 12-yard Tournapull, and a No. 12 Caterpillar grader. American Bridge used two No. 2000 Manitowocs, a No. 55 P&H Moto-Crane, and a Browning locomotive crane. Midwest had an 820 Lorain, a 605 Koehring, and a 25 Lorain. Fagan, the electrical contractor, had a Bucyrus-Erie 15-B, a 25 Lorain, and a K5065 ½-yard Insley. The plumbing contractor used a Model J Quick-Way and a No. 324 Parsons ditcher.

Three Pitman Hydra-Lifts, which feature a hydraulic telescoping boom with a range of from 12 to 22 feet, were used principally to handle pipe. They were mounted on 1½-ton dual-wheel Chevrolet trucks. Three 3,000-amp Lincoln welders were also on the job.

#### Quantities and Personnel

The quantities involved were:

Concrete, substructure	45,000 cu. yds.
Concrete, superstructure	4,400 cu. yds.
Grading, in excess of	500,000 cu. yds.
Railroad track	12,000 lin. ft.
Structural steel	5,000 tons
Reinforcing steel	2,000 tons

Completion date was originally scheduled for July 1, 1953, but unfavorable weather during the winter and spring moved the date back to late fall.

The Reynolds Metals Co. was represented by J. W. Hutchison, plant manager, and John Kinzey, resident engineer. L. C. Nelson represented the prime contractor as project manager. K. L. Krealmayr was general superintendent for the Midwest Construction Co., and W. T. Brannan was general superintendent for American Bridge.

THE END

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stall" performance are the result of Hydraulic Coupling Power Take-Off. The 90° swing cycle used on this job is fast. Two travel speeds in both directions. Crawler steering and tread lock are air controlled. There is less down-time, less drag cable replacement because the "Cable Miser" fairlead feeds cable to the bucket through geared sheaves that turn the same direction and speed as cable travel. A 34" hoist sheave adds to hoist cable life. For facts about a real dirt-moving, profit-making Dragline, get the complete story from your Thew-Lorain Distributor.

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**THEW LORAIN 820**  
FOR BIG JOB PROFITS

## New AGC President Fights for Construction Industry

By RAY DAY

ALTHOUGH HIS CORRESPONDENCE WAS screened by an efficient secretary, John MacLeod, president of Macco Corp., Paramount, Calif., and president-elect of the Associated General Contractors of America for 1954, found his desk covered with morning mail. The letters involved construction problems of one kind or

another on both the North and South American continents. When MacLeod found before him a copy of the latest information on Senate Bill 848, currently proposed for federal agencies and the construction industry, he quickly pressed a desk buzzer.

As an administrative expert

stepped into his office, MacLeod handed him the letter saying, "This bill is bad for contracting and the general public. Take this information and think about it. I'll talk to you about it later, and we'll map out some way to fight the thing."

Such preoccupation with matters affecting the over-all construction

industry is not unusual in MacLeod. He has always had an interest in the general construction industry since the time he began working as a construction carpenter at the age of 17 in Vancouver, B. C. Since then, he has pulled himself up through important supervisory positions to the presidency of a corporation which, at the latest estimate, had completed \$388,000,000 worth of public construction work.

Macco Corp. is a huge organization involved directly or through affiliation with other contractors in joint-venture operation on major projects throughout the western United States and South America. Not only is Macco a big scale construction outfit, it also covers five other divisions: oil rig building, drilling fluids, pipelines, refinery development, and Macco Lumber Co., a retail lumber outlet.

In addition to all this, Macco Corp. has a 50 per cent interest in Macco-Panpacific, Inc., which is engaged in general engineering and construction work in the Panama Canal Zone and Venezuela. It has a similar interest in Pacific Dredging Co., operating one of the largest fleets of balanced dredges on the west coast. A third affiliate is Macco Panpacific Co., currently active on a Puerto Rican highway construction program and on a 258-mile highway between Santa Cruz and Cochabamba which is being cut through the Andes Mountains in Bolivia.

Such a far-flung program, presenting countless problems daily, would completely occupy the time of most men running an organization like Macco. But MacLeod is a man of a special caliber. He literally runs his organization with one hand tied behind his back because AGC and other affairs have taken an enormous amount of his time for years.

### Concerned Over Legislation

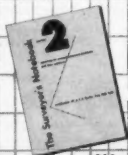
Right now, in the midst of constant and important affairs affecting Macco Corp., MacLeod is vitally interested in legislation before Congress which affects the construction business. On assuming presidency of AGC, MacLeod will probably give even more attention to the bills now pending in the nation's capital.

MacLeod is particularly concerned about Senate bill S.848, known as the Federal Construction Act of 1953, which, in conjunction with H. R. 1825, is now before judicial committees for consideration. In essence, the measure would force general contractors to name and detail the price of subcontractors engaged with them on Federal work. In addition, it would force general contractors to use approved independent specialty subcontractors.

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The measure is an outgrowth of the movement existing for years in the building construction business to have electrical and plumbing work placed on an independent status.

"The bills seems harmless enough at first glance," MacLeod explained. "Outwardly, it's supposed to establish a more efficient system for the bidding and awarding of subcontracts on Federal public works projects, encourage economy, boost competition, and improve ethics. Unfortunately, you can't legislate ethics; nor can you improve by law the moral conduct of human beings.

"If this bill should become law, it would have an effect opposite that intended by its makers. Federal contracts are unwieldy enough now, but this would make them excessively so. The law would most certainly increase the cost of construction. Public funds would be wasted. Competition would actually decrease. And what's worse—I think it's vicious—clandestine business relationships would develop to undermine the whole intent of the bill.

"Much Federal work consists of big, long-term jobs, dependent on continuing federal appropriations for their completion. How can a subcontractor on specialty work give a firm price without protecting himself by excessive contingency costs? He can't, of course.

"In my opinion, almost all contractors adhere to the practice of awarding subcontracts to the lowest responsible bidder, but because of the late arrival of sub-bids, it's impossible to determine who the lowest responsible bidder is prior to the bid opening. Therefore, the present method of submitting bids is to the best interest of the Government, the taxpayer, the general contractor, and the subcontractor."

While he is against this bill, MacLeod is all for another Senate bill, known as S.24, which would clarify the law in regard to the right of appeal from decisions by contracting officers. Stemming originally from the Supreme Court decision in the Wunderlich case, the Senate bill would give contractors the right of appeal.

"C. P. Street, President of AGC, said, 'The judicial review of contract disputes is a fundamental right of American justice.' He's right. It sometimes seems strange to me to see so many of our basic liberties under attack."

The crystallization of issues like these—which have been in a formulative stage for a long time—can be reasonably expected in MacLeod's term as AGC president.

There will be still another source of concern to MacLeod as he picks up the AGC reins. In spite of an all-time high in the volume of construction, MacLeod is vitally concerned



As president of AGC for 1954, John MacLeod, head of Macco Corp., finds his daily schedule filled.

about the tight competition in various parts of the country which is causing some firms to go broke. He feels that construction is one of the

industries which helps the nation retain its strength, and he will do anything he can to prevent a good construction company from failing.

What makes a good construction organization? What fundamentals are always involved? What is the secret of good business, construction-wise? The genial Macco president feels that any good construction organization must first have an engineering and estimating section

(Continued on next page)



## 1/ THE EASY WAY . . .

. . . is to design a few basic machines, and then build up a line of additional models by adding extra counterweight, speeding up the engine, and hanging different size dippers on each.



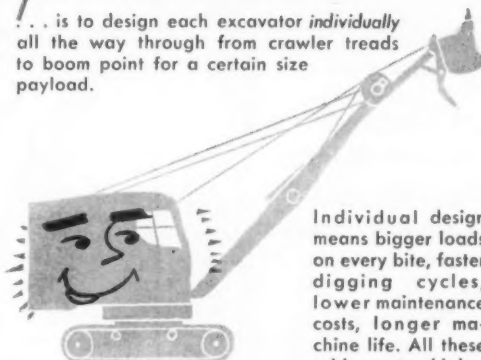
Some of these machines will carry dippers too small. Output will be reduced, power wasted.



Other machines with dippers too large and counterweight too heavy will sweat and strain from overwork.

## 2/ THE BUCYRUS-ERIE WAY

. . . is to design each excavator individually all the way through from crawler treads to boom point for a certain size payload.



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## Portrait in Print

which is competently staffed, alert to trends and each day's operations. The personnel department is important, too, according to MacLeod, because through that section will come help which can make or break the strongest company. MacLeod is, of course, enough of an old-time construction stiff himself so that he stays close to his projects and knows his men. He has a strong hand, often the sole one, in the selection of able key men for important supervisory posts in Macco Corp.

One of the important divisions in a construction organization is one concerned with planning, scheduling, and equipping a job. There is a point of diminishing returns, he feels,

in saving money by using machinery not quite suited to the job at hand. For this reason, Macco's equipment roster includes practically everything needed to push at an optimum speed and cost any work undertaken by the company. Equal emphasis is given to planning and scheduling.

"The right superintendent or project manager for a job is one of the really important things no construction outfit can forget," said MacLeod. "The right man will have the background, the good judgment, and the ability to handle men so that he can run his job with an absolute minimum of reference or interference as far as the main office is concerned. How he handles his planning and scheduling, and how he gets along with his own men and the engineers you're doing the work for will determine how much longer you stay in business."

Accident prevention, too, came up for discussion. MacLeod is one of the old-timers who grew up in that tough and rugged construction era when men were either mighty prudent or mighty dead. Yet he inherited none of the cynicism usually associated with the era when men were men and safety engineers wore ribbons. MacLeod believes in accident prevention so strongly that his firm uses the retroactive type of insurance. How well he practices what he preaches can be told in figures. Each year the refund from his insurance totals from \$80,000 to \$100,000. What that means in terms of accidents averted can only be imagined.

Competent cost engineering is very important, too, according to MacLeod. He believes that at least some of the AGC members who went broke last year did not know their true costs. "Look at the people, for example, who think they're driving their automobiles for 6 or 7 cents a mile. Actually if they'll figure all their costs, it's more nearly 10 or 11 cents. Competent cost en-

gineering can't be overemphasized in this industry."

Regarding the future of the construction business, MacLeod said, "I wish more young men would realize its potentialities. Some of them are missing good bets." MacLeod's own career should be heartening to anyone looking for a future in the industry.

### Distinguished Career

Born February 12, 1894, in Invernesshire, Scotland, he moved to Canada after being graduated from Queens Park High Grade School in Glasgow at the age of 17. Arriving in Vancouver, he landed a job as a construction carpenter for Walter Hipburn Co., and like many another man whose circumstances dictated his lifelong work, John MacLeod was launched on a construction career.

In 1923, MacLeod came to the United States and took a job as a superintendent for William Simpson Construction Co., Inc., in Los Angeles. In six years' time he was ready for the important move of his life: the organization of his own Macco Corp. He started it as Macco Construction Co., planning at the outset to build derricks and other facilities for the local oil companies. At that time, his Canadian work had given him a quantity and quality of experience that was enormously valuable. He had been a carpenter foreman for Bates & Rogers Construction Corp. on the Grand Trunk Pacific in British Columbia. Later he had done a hitch as construction superintendent for the railroad, and had seen experience right on the management firing line as general superintendent of the tie and timber department of the Canadian Pacific Railroad.

As Macco Construction Co. mushroomed from its humble beginning to its present corporation status, it began to reflect the background and personality of its president. Today, the oilfield, lumber, and timber divi-

sions of the company are natural outgrowths of John MacLeod's knowledge of those fields.

The accomplishments of the outfit are far too numerous to detail. The firm did \$150,000,000 worth of war work, from the Mexican border to the Aleutian Islands. Its industrial plant work is similarly scattered. Oilfield construction, refinery building, pipelines, transmission lines, tunnels, dams, and other heavy construction jobs done by Macco all reflect the broad know-how of the organization headed by MacLeod.

In spite of this, John MacLeod is still an unassuming, friendly man who likes simple things. Hard work consumes most of his time. He likes a bit of golf occasionally, and sometimes he combines business with pleasure by taking a couple of weeks for a boat trip with his old friend

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and present partner in Pacific Dredging Co., H. W. McCurdy, president of Puget Sound Bridge & Dredging Co. They go out on McCurdy's boat, the Blue Peter II, roaming sometimes as far as the Aleutians, fish for salmon, and recall much of the color of the old days. On these trips, MacLeod relaxes as much as the ship-to-shore communication system will allow.

When he goes out on his frequent job visits, MacLeod's time is punctuated by the renewal of personal friendships. He is invariably called by his first name and his ability to remember people by their names is legendary around the Macco head office.

Not long ago, as he was discussing some important business with one of his department heads, MacLeod was recognized by an oilfield worker in overalls who had not seen him for years. The business conference stopped for 20 minutes while the two men recalled the rough-and-tumble past. When MacLeod turned back to his department head he said, "Some of the most interesting people in the world are in the construction business."

His home life is unassuming and happy. He and Mrs. MacLeod have three daughters: Catherine is the wife of William Shattuck, son of President Charles B. Shattuck of the National Realty Board; Janet is married to architect John Klug, presently serving in the U. S. Army at Fort Ord; Jacque is still at the University of Southern California, which may or may not be good so far as MacLeod's loyalty on football bets is concerned. USC has not had too good a year in that regard, and Macco Corp. has department heads who regard the boss as fair game for small wagers.

MacLeod is the honorary chairman of the United Scottish Societies of southern California and is a Mason and a member of the Scottish Rite of that order. He participates regularly in community affairs and has devoted an enormous amount of time as a labor negotiator for the southern California branch of AGC. For 5 of the last 9 years, he has been joint chairman of this chapter's labor relations committee and much of the amiability in labor relations between the American Federation of Labor building trades union and contractors in the area can be traced to MacLeod's understanding, tact, and, when necessary, Scotch tenacity.

When the president's gavel of AGC is handed to John MacLeod at the Statler Hotel in Los Angeles early in 1954, it will be placed in the hands of an outstanding leader in the construction industry. He is a man whose hands have known many hours of hard physical work and whose mind has always been applied to the job at hand. It can safely be predicted that the net result for AGC will be as outstanding as it has been for Macco Corporation.

THE END

Nearly \$2 billion was spent by corporations last year for research leading to new products and improvements in established products, according to a report by Chamber of Commerce of the United States.



The new White truck, on which a Jaeger Mix-Plus mixer is mounted, features a special steering pusher axle that increases payload within state legal limits.

### Steering Pusher Axle For Bigger Payloads

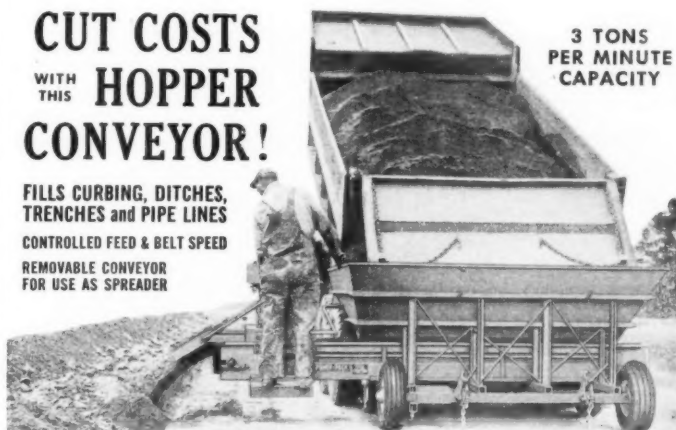
■ A new truck model with a steering pusher axle is made by the White Motor Co., 842 E. 79th St., Cleveland 1, Ohio. The independently mounted special axle featured in the Model

WC-2284 Centipede is said to improve weight distribution and flotation for bigger payloads within state limitations. Mounted ahead of the tandem drive axles, it steers one degree for each three degrees of front-axle steering.

In one application, the White

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For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 543.

### Schonrock Names Salesman

Named as sales representative for the Schonrock Equipment Mfg. Co., San Angelo, Texas, is Tom J. Hawthorne, formerly with the off-the-highway division of Mack Trucks, Inc., New York 1, N. Y. Mr. Hawthorne will handle sales of Schonrock cable-dump trailers.

## LENKER L-E-VATION

### R O D

an  
AUTOMATIC  
LEVEL ROD  
for  
DIRECT READING  
of  
ELEVATIONS  
WITHOUT  
COMPUTATIONS

No deductions are made from the height of instrument to find an elevation.

All note book records are eliminated with the exception of station and elevation.

A great improvement over the old method of taking levels.

Write for Circular.

LENKER MANUFACTURING CO.  
SUNBURY, PENNSYLVANIA

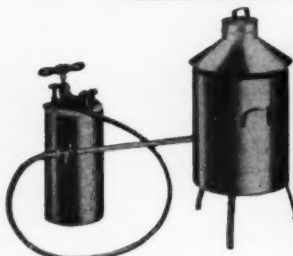


## Rockwell Names Maxwell

Resigning as the president of the Acro Mfg. Co., Columbus, Ohio, F. P. Maxwell has accepted the newly

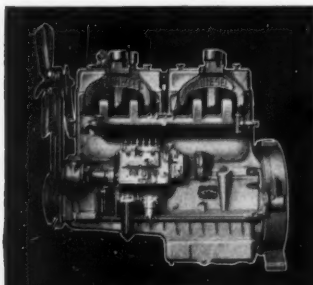
created position of vice president of the power tool division of the Rockwell Mfg. Co., Pittsburgh, Pa. He will have charge of all activities of the division.

## WILL WINTER STOP YOU COLD?



AEROIL oil-burning Salamanders keep winter construction crews ON THE JOB even through the worst freeze-ups. Clean and economical, Aeroil Salamanders eliminate all the hazards of coke burners. You can solve your winter heating problem in a snap with Salamanders, Coil Type Water Heaters, and Concrete Heaters by Aeroil . . . Write for free bulletin 210 RS.

AEROIL PRODUCTS COMPANY, 75 WESLEY ST., SOUTH HACKENSACK, N. J.



**WAUKESHA Super-Duty Six DIESEL (WAKD)**—six cylinders, 6¼-in. bore x 6½-in. stroke, 1197 cu. in. displacement, peak hp 224 at 1600 rpm.



Cutting a new road—part of the Van Wyck Expressway connecting International Air Port with Flushing, Long Island—with a Waukesha Diesel powered Lorain shovel



Owner A. J. Orlando says . . .

"TO MOVE DIRT FAST and ECONOMICALLY—I prefer

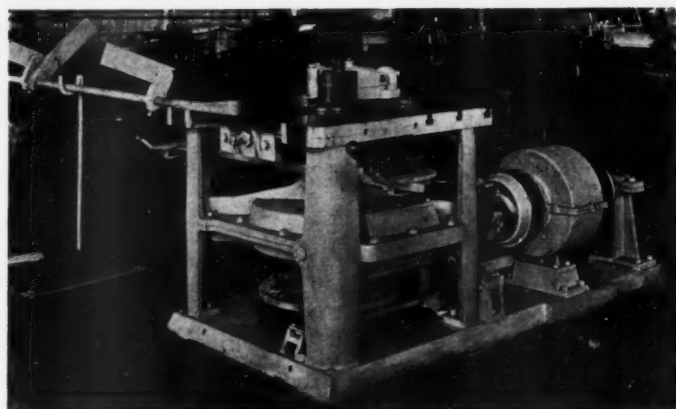
## WAUKESHA DIESELS

to any others  
I have owned or operated"

A. J. Orlando puts on the power—digging starts! It's that quick—that smooth! It's *fast recovery* that makes the Waukesha Diesel so different. "A. J." knows the difference. So do his operators. He owns not one, but three Waukesha Diesel powered 2-yd. Lorain shovels—all working for the A. J. Orlando Contracting Co., Whiteside, L. I., New York.

Plenty of other contractor-owners, and their operators prefer Waukesha Diesels. For the same reasons. More loads per minute. Extra power in the pinches. All-around dependability. And the lively, responsive acceleration, shock-free operation, and clean burning for fuel economy that you get with the patented spherical combustion chamber of the Waukesha Diesel. Check all its features—get Bulletin 1415.

**WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.**  
New York • Tulsa • Los Angeles



The Alamo bar-bending machine can be used for fabricating reinforcing bars on the job.

## Rotary Bar Bender

■ A bar-bending machine for shaping reinforcing iron and steel rods is made by the Alamo Iron Works, 120 Hoefgen St., San Antonio 6, Texas. The Alamo rotary bender makes stirrup bends, spirals, large radius bends, and a variety of special bends.

To make bends, pivoted blade-type gages are used to locate the point on the bar to be bent, and an automatic stop assures the correct angle of bend. The use of a foot-lever and several stop pins permits the bending of stirrups having several different angle bends on a single setup of the machine.

The machine's spiral attachment consists of an air cylinder with swivel head supported on a bracket at the rear of the bender table. It also includes a wire straightener and a set of swivel rolls for ¼ to ½-inch-diameter wire. Two dies, one round and one square, are furnished as standard equipment. Compressed air of from 20 to 40 psi is needed for operation. A small compressor, which mounts on the bender and is coupled to the motor shaft by a belt, is available.

The large-radius bending attachment works on a three-roll principle, one roll acting as an adjustable idler

and the other two being powered by the bender's rotating head. The machine is powered by either an electric motor or a gasoline engine. Hand levers are so located that the operator can manipulate the machine from directly in front or from either side.

For further information write to the company, or use the Request Card at page 18. Circle No. 529.

## Line of Concrete Anchors

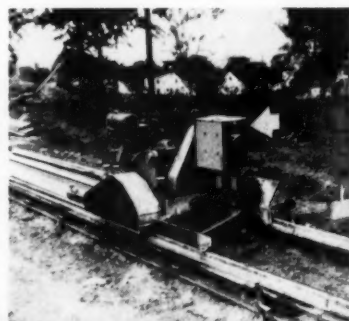
■ Anchors for masonry, plastic, wood, and refractories are catalogued in a new booklet from the Super-Grip Anchor Bolt Co., Inc., 3333 N. 22nd St., Philadelphia 40, Pa. Screw anchors, single and double anchor bolt assemblies, and hook, loop, and toggle bolt assemblies are described. In addition, there are specifications for setting tools, tamping tools, and masonry drills. Also illustrated are concrete inserts and set-in anchors.

The booklet describes an electric hammer that can be used for hole-drilling and chase-cutting in concrete and brick. Details on three models are given along with a list of tools available for the hammer.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 649.

## NEW TAMPING ATTACHMENT for DOTMAR CURB, GUTTER, SIDEWALK, PAVER

Further Speeds Paving . . . Eliminates Hand Tamping Readily attached to existing machines.



## It's Actually 3 Machines In 1!

Contractors everywhere are boosting production, saving time, cutting costs, with Dotmar Curb and Gutter Pavers. Paves 5 to 10 lineal ft. per min. Lays any shape curb and gutter, and sidewalks up to 60" wide, or integral, curb, gutter and sidewalk simultaneously. Tamps concrete ahead of screed. Pays for itself in first mile of curb and gutter paved. No face forms to set in curb work. Self-powered—as few as 3 men can operate. Send for Bulletin

# Dotmar INDUSTRIES Inc.

519 HANSELMAN BUILDING, KALAMAZOO, MICHIGAN

CONTRACTORS AND ENGINEERS





The Fenestra Electrified floor, an electrified cellular-steel subfloor, is designed to carry a live load of 150 pounds per square foot. Cellular galvanized-steel panels serve both as structural systems and as electric distributing system through the addition of a Nepco header duct. The panels may be covered with concrete to complete the flooring. For further information write to the Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit 11, Mich., or use the Request Card at page 18. Circle No. 622.

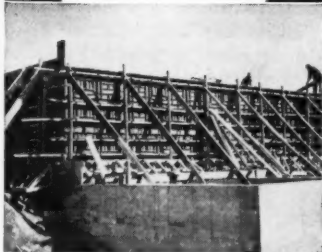
### Caterpillar Promotes

R. M. Smith has been promoted to assistant chief engineer of the engineering department of the Caterpillar Tractor Co. plant at Joliet, Ill. A graduate of the University of Illinois, he joined Caterpillar in 1941.

In the newly formed engine division of Caterpillar, J. H. Gill has been named manager of industrial sales. He replaces H. W. Smith, who has been made a consulting engineer.

H. J. Hunkele, formerly assistant sales manager of the central sales division, has been transferred to the engine division, where he has been named assistant manager of industrial sales. He is replaced by E. A. Tiarks, who has been assistant sales manager in the western sales division for the past three years.

Reduce costs and  
**INCREASE PROFITS**  
by renting these metal  
forms for concrete



Economy Metal Forms save time, labor and material. They quickly lock together with a simple twist of a clamp. Standard units fit most jobs. Where needed, special forms can be fabricated to specification.

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metal forms for concrete construction



the  
**ABC**  
Supercoach  
America's  
Best  
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MODELS  
40-4 ONE BEDROOM  
40-6 TWO BEDROOM  
45-6 TWO BEDROOM  
LUXURY COACHES  
EXCLUSIVE FLOOR PLANS  
EXCLUSIVE DESIGN

RADIANT FLOOR HEATING

APARTMENT KITCHENETTE  
FULL SIZE BATH

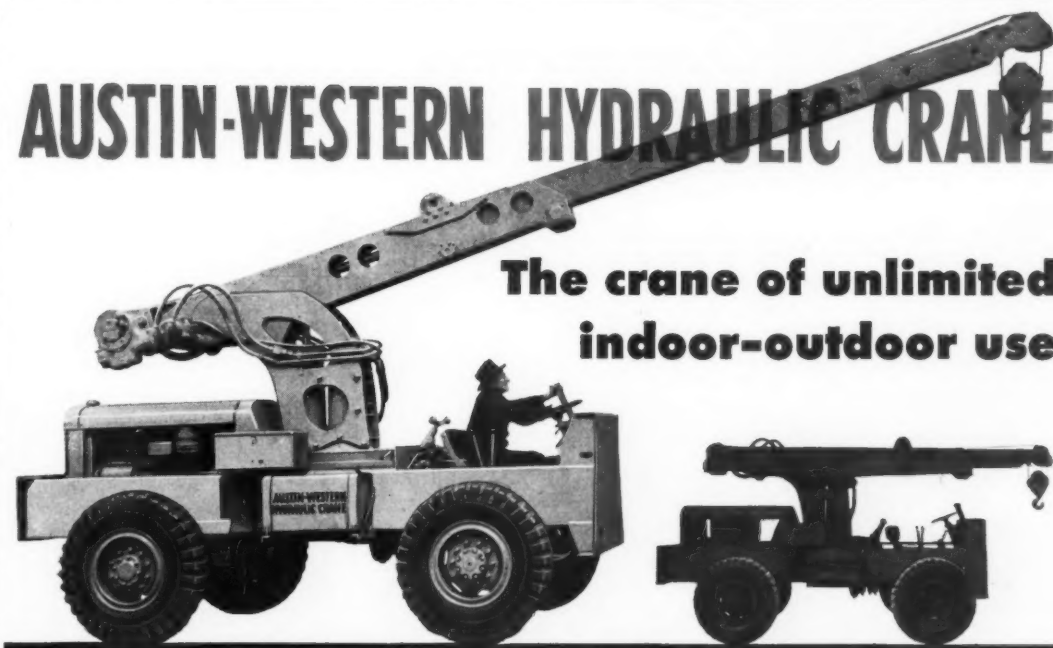
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OPTIONAL CROSLY KITCHENS

ABC COACH CO., 274 5TH ST., PINCONNING, MICH.



## AUSTIN-WESTERN HYDRAULIC CRANE

The crane of unlimited  
indoor-outdoor use



IDEAL FOR USE WITH CLAMSHELL AND MAGNET



Designed only after a complete analysis of crane requirements — here is TOMORROW'S answer to TODAY'S materials handling problems.

Complete hydraulic operation includes:

- ✓ Continuous 360° turntable rotation,
- ✓ Extension and retraction of the boom,
- ✓ Raising and lowering of the cable,
- ✓ Boom elevation.

Available in both tractor and truck-mounted models, this self-propelled Hydraulic Crane, with its pickup, carry and placement capabilities, combines the best features of crawler, truck and erection cranes with those of industrial cranes . . . will prove a big time, labor and money saver on many construction and maintenance jobs.

Send for additional information NOW.

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629 Farnsworth Avenue, Aurora, Illinois

Please send complete information and literature on the Austin-Western Hydraulic Crane.

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## READY TO MOVE... IN MINUTES! WITH A TRANSPORT TILT-TRAILER



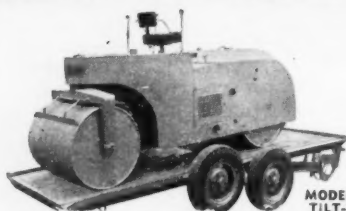
MODEL GXTT  
Gooseneck type  
Tandem axle, tilt-trailer



MODEL GPX-D  
Tandem axle, Capacities  
16 through 35 tons.  
Drop or flat deck.



MODEL KSO-D  
Oscillating axles,  
8 tires in line...  
capacities 15 through  
30 tons.  
Drop or flat deck.



MODEL T-8-18  
TILT-TRAILER

Faster, safer between-jobs hauling of equipment means more on-the-job production... more profit to operator. A TRANSPORT between-the-wheels tilt-trailer is easier to maneuver... one man can quickly load front-end loaders, tractors, rollers, mixers, etc., with no lost motion.

8-10-ton capacity... 18-foot platform length... 76 1/2" clear inside platform width... tandem axle walking beam assembly with axle comb... automatic platform lock with tilt control optional. MODEL T-8-14, with 14-foot platform bed, also available.

WRITE FOR FURTHER INFORMATION



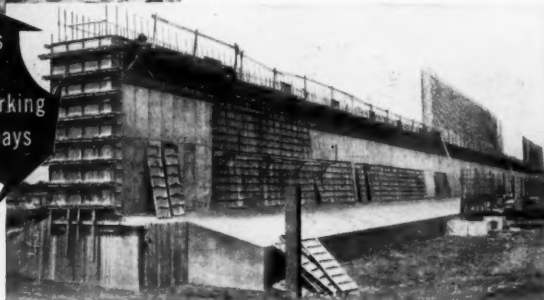
## UNI-FORM Concrete Forms

### INCREASE Labor

### Productivity!



Progress  
in  
10 Working  
Days



Form more contact area per man hour with **UNI-FORM** Concrete Forms... the **MECHANIZED** concrete forming system

**UNI-FORM**  
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Provide:

- FASTEST FORMING SYSTEM — ground to ground
- Automatic accuracy of wall widths for faster erection
- Alignment and bracing on 1 side only—substantially reduces labor, material cost
- Fast job starts... Ready to use when they reach the job—save time
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## Contractor Uses Signs For Safety On Road Job



RECOGNIZING THE ADVANTAGES of good public relations, T. L. James & Co., Inc., Ruston, La., prides itself on its striking safety signs, which have become a kind of trademark. An example of this often neglected phase of the contracting business was the safety signs and barricades employed when the firm replaced 4.8 miles of overloaded outmoded roadway on Arkansas' U. S. 67 with new cement-concrete pavement.

Before any work on the paving job began, James erected its safety signs. In two colors, with high day and night visibility, they were put up at either end of the project. Motorists approaching the site were

amicably advised to "Take It Easy, Bud". A cartoon figure of a construction workman imparted this advice. As the motorists left the area, a second sign showed the same cartoon figure gratefully saying "Thank You".

James used an entirely new type barricade and warning device for the first time on this job. Made of welded pipe, it is Scotchlighted. A flare burner is threaded into the pipe at either end and hollow members contain the oil reservoir. The flares are attached about 2 feet above the ground for greater visibility. The pipe contains enough oil for several nights. The reflector tape serves as a warning signal in the event the flares blow out. The Barricade is a patented product of Underwood Patented Barricade, Inc., Crowley, La.

New type barricade and warning device—a product of Patented Barricade Inc., Crowley, La.

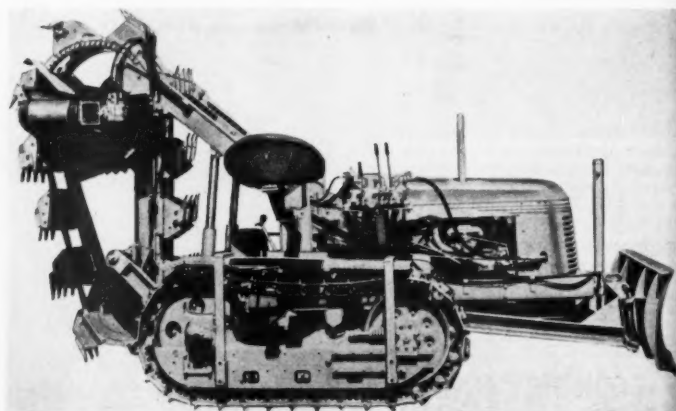


## New Trenching Machine Is Tractor-Mounted

■ A bucket-type trenching machine for the Oliver Model OC-3 crawler tractor is announced by the Heller Engineering & Mfg. Co., 11752 S. Alameda St., Lynwood, Calif. The Model 3A-48 Universal trencher has a 4-foot digging depth and features digging-width control with bolt-on

clearance teeth. It has six digging speeds and is made with an adjustable and reversible soil conveyor. The machine comes with a hydraulically controlled backfiller blade.

For further information write to the company, or use the Request Card at page 18. Circle No. 536.



The Heller Universal trencher Model 3A-48 mounted on an Oliver OC-3 crawler tractor.

CONTRACTORS AND ENGINEERS



Use the  
Request Cards  
Between  
Pages 18 & 19  
To Obtain  
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or Described  
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## Emergency Generators

■ A new group of 1,800-rpm emergency power generators is shown in literature from the Katolight Corp., 624 N. Front St., Mankato, Minn. The generators are made in sizes from 2,000 to 15,000 watts. They are said to be easily belted to a tractor or to any speed-governed engine.

The power units develop the same 115/2300 voltage as supplied by highlines and come in two designs: revolving armature and revolving field. The latter, having a separate direct-connected exciter, is recommended for its overload and motor-starting ability. A standard pulley and panel, complete with a voltmeter and rheostat, can be supplied along with necessary transfer switches. The generators are also available in three-phase characteristics.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 554.

## New Gar Wood Division

Gar Wood Industries, Inc., Wayne, Mich., has organized the Mattoon Division to handle the production of Gar Wood bulldozers and road machinery sold through Allis-Chalmers industrial tractor dealers. Hunter Dietz, formerly plant manager at Mattoon, Ill., has been appointed manager of the new division.

In conjunction with the formation of the division, Gar Wood's bulldozer and road machinery production facilities are being greatly expanded. The Mattoon plant, located on a 46-acre site, is being made into a self-sufficient road machinery production center. In addition to metal fabrication and assembly, the plant is now manufacturing hydraulic components and subassemblies formerly produced at other Gar Wood plants.

The new division is also in full production on the products of the

St. Paul Hydraulic Hoist Division, which has moved to Mattoon from Minneapolis, Minn. The sale of these products will continue to be handled by St. Paul's distributor organization.

## One-Piece Tie Bars For Longitudinal Joint

■ A one-piece tie bar, for keyed longitudinal highway joints, that does not interfere with the operation of the subgrader along the adjacent lane is announced by the Baltimore Co., 1 E. 35th St., New York, N. Y., and the P.B.A. Co., 2928 W. Main St., Alhambra, Calif. The tie bar has two 90-degree bends, a down bend that takes the place of the conventional chair for holding the bar in place during the pouring of the first lane, and a horizontal bend.

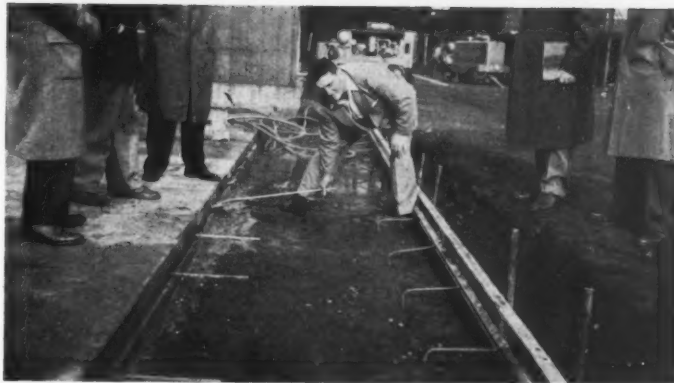
The portion bent horizontally is held by a special clip in a channeled steel keyway welded to the header board. This part of the tie-bar remains flush in the channel formed in the first slab until the second lane is ready for pouring. It is then bent out at a 90-degree angle to the longitudinal joint with a pipe-like device.

The tie bars and channel iron are available as a package unit. The single tie bar method is intended as an alternative to the use of 3-piece threaded bars.

For further information write to the company, or use the Request Card at page 18. Circle No. 631.

## Madsen Appoints Manager

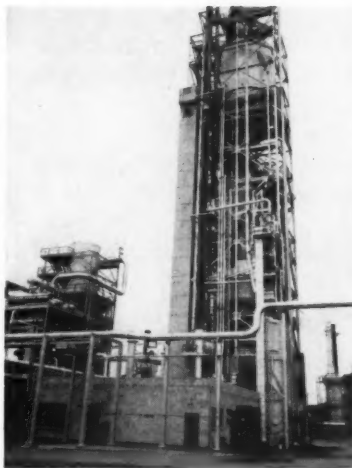
Alex Kostyzak has been named sales manager of Madsen Iron Works, Inc., Los Angeles, Calif. He will be in charge of domestic and foreign sales of asphalt paving plants and other construction equipment. Mr. Kostyzak has held virtually every type of construction job from clerk to foreman and superintendent.



◀ At right, the one-piece tie bars rest in a special channel iron prior to pouring. At left, the exposed portions of the imbedded tie bars are being bent out.

## HOW FRANKI FOUNDATION COMPANY

*Saved \$30,000 For Socony-Vacuum Oil Co. Inc.*



A modern catalytic cracking unit at Socony-Vacuum's East St. Louis Refinery will be supported by 119 Franki Pressure Injected Spread Footings. Consulting Engineer—The Lummus Co., New York City.

• Original specifications called for 30-ton pre-cast concrete piling. Because of the heavy vertical loads and high winds (up to 100 m.p.h.), this method required extremely large concrete caps.

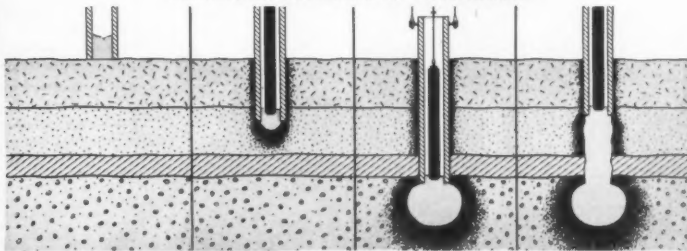
Franki Pressure Injected Spread Footings were substituted, providing vertical load capacities up to 120 tons per unit, and uplift resistances to 50 tons per unit. It was possible to greatly reduce the cap concrete as well as install the foundation to shallower depths, because of the great force utilized in forming Franki Displacement Caissons and resultant sub-surface soil compaction. Result: A saving of more than \$30,000. Proof again that Franki Pressure Injected Spread Footings are first for speed, safety and economy.

... LIGHTEN YOUR COSTS ... INCREASE YOUR LOAD! ...



Send for "Franki Facts" for complete information about this Socony-Vacuum Oil Company project—and an illustrated booklet describing the Franki Foundation Method in complete detail. Write Franki Foundation Company, 114 East 40th St., New York.

## FRANKI INSTALLATION PROCEDURE



**FRANKI**  
FOUNDATION COMPANY



FIRM FOUNDATIONS FOR OVER FORTY YEARS

**3 wheelbarrow mixer** } **1 1/3 the cost!**

Essick 9 cubic foot "One Sacker" Concrete Mixer is the largest portable tilting drum mixer made—three full wheelbarrow loads per batch! It has the full capacity of a skip loader at 1/3 the usual cost! Ruggedly constructed to give years of dependable service... yet so light weight it is no heavier than many 3 1/2-S mixers! Trails easy and easy to use. Equipped with Essick special advantages that make it absolutely the finest big-batch mixer made!

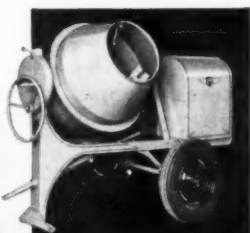
See it at your Essick Dealer or write for information!

Sales and Service Coast to Coast and in Foreign Countries



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UNBREAKABLE STEEL  
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DOUBLE-CUTTING  
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SMOOTH RUNNING  
TIMKEN BEARINGS

SILENT MULTIPLE  
V-BELT DRIVE

RIDE EASY  
CANTILEVER SPRINGS

POSITIVE LOCKING  
DEVICE holds drum  
in any position

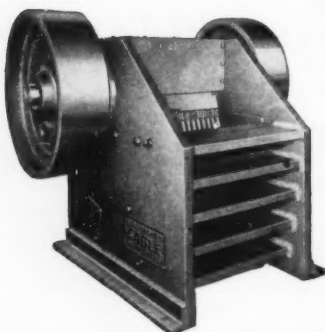
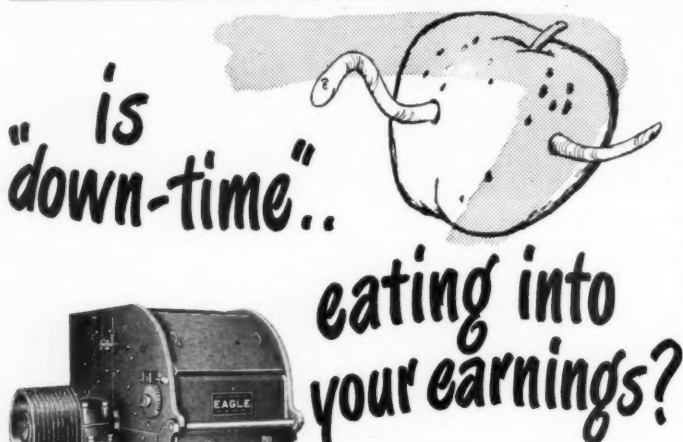
ELECTRICALLY  
WELDED STEEL FRAME

## Esco Branch Moves

The Seattle branch of Electric Steel Foundry Co., Portland, Oreg., has moved to new and larger quarters at 1131 W. Hanford St. The

new building houses offices and a warehouse.

In addition to manufacturing construction equipment, Esco is a distributor for Louis Allis, Morse, Mo-line, and Armco.

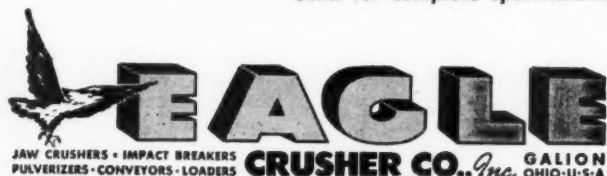


Those who operate Eagle Hammermills and Jaw Crushers are pleased with the speed of replacing wear parts. Interior is quickly accessible. Many parts are reversible or interchangeable for extra service.

And we bend over backwards to speed parts to you — day or night.

It all figures out to less down-time — more profit!

Send for complete specifications!



## Announcing the new Self-Propelled CONCUR CONCRETE SAW

**Still the Leader**

...for easier operation!  
...for faster operation!  
...for longer blade life!

Increase your concrete sawing profits with the all new Self-Propelled CONCUR CONCRETE SAW. It's the first truly-balanced concrete saw on the market. Smooth operation l-e-n-g-t-h-e-n-s blade life so that you can make more profit on every sawing job. • Check the new CONCUR features below and write for complete details.

Hydraulic raising and lowering... lessens blade abuse and reduces operator fatigue.

Exclusive pointer weight transfer... machine "floats" over rough obstacles in concrete — minimizes binding.

Unit is equipped with Vickers Power-Pack Transmission... for long trouble-free life.

Powered by Wisconsin TF 13.3 H.P. Engine... has Dayton Cog Belts and roller bearing wheels.



### COMPLETE LINE INCLUDES

- Model SP-300 Self-Propelled CONCUR Saw
- Model S-200 Standard CONCUR Saw
- Model R-100 Lightweight CONCUR Saw
- Model SPR-400 Super CONCUR Saw
- JOINTMASTER Models 1200 and 2400
- Guaranteed FOOTHILL BLADES

# Avoid Legal Pitfalls

Edited by A. L. H. STREET, Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

## Building Turnpikes in Stages

**THE PROBLEM:** A West Virginia statute empowered a turnpike commission to facilitate traffic by providing for the construction of modern express highways embodying every known safety device, including center division, multiple lanes in each direction, and other specified features. Did this statute fix minimum standards of construction, so as to preclude construction of a four-lane highway in stages, the initial stage consisting of two lanes?

**THE ANSWER:** No. (Guaranty Trust Company of New York v. West Virginia Turnpike Commission, 109 Fed. Supp. 286, decided by the United States District Court, Southern District of West Virginia.)

The court found that a four-lane highway could not be financed by revenue bonds because of the high cost of construction through mountains, with no prospect of alteration of the situation within the foreseeable future. So, the act would remain a dead letter if the commission could not initially build something less than four lanes.

## Street Contract Was Not Validly Awarded

**THE PROBLEM:** A Kentucky statute required that a street-improvement contract be awarded to the lowest bidder after "proper advertisement" and "due notice". A city council conferred with a contractor with a view to such an improvement and, six days before an ordinance providing for the improvement was adopted, published a notice "to con-

tractors" asking for sealed bids. Another notice to the same effect was published the same time as the ordinance, but specified that no bids would be received after 10 a. m. the next day. At an adjourned meeting of the council four days later, the contractor's oral bid was orally accepted and the job was completed. Did this procedure invalidate special assessments levied against the abutting property?

**THE ANSWER:** Yes. (City of Hartford v. King, 249 S. W. 2d 13, decided by the Kentucky Court of Appeals.)

The court declared: The statute required that such notice be given as would enable prospective bidders to examine the specifications, to estimate costs and prepare bids.

The notice published before the ordinance was adopted was ineffectual. "No business man would think of submitting a bid... in the absence of an ordinance. There could be no 'proper advertisement' prior to the enactment of some ordinance or resolution legally initiating the project.

"Competitive bidding is a jurisdiction prerequisite to the authority of the city legislative body to charge property owners with the cost of improvements."

Even though there was no statutory requirement that the contract be in writing, the contract was void because orally made. And, furthermore, the bid was not valid because it, too, was not in writing.

## Valid Discrimination In Awarding Contracts

**THE PROBLEM:** An Arizona statute specified that in awarding contracts for work payable out of public funds, preference should be given to the bid of a contractor who has paid state and county taxes for not less than two years, if less than 5 per cent above that of a nontaxpaying competitor. Was it constitutional?

**THE ANSWER:** Yes. (Schrey v. Allison Steel Mfg. Co., 255 Pac. 2d 604, decided by the Arizona Supreme Court.)

The court said that the legislature could have believed that the law would serve the best interests of the state and its political subdivisions.

## Liability to Children

**THE PROBLEM:** A company stored dynamite caps in paper sacks in its garage. Children habitually played on the premises, and one of them easily entered the garage, took some caps, and was injured through their explosion. Was the company liable?

**THE ANSWER:** Yes. (Ferguson-Beebe, Inc. v. Young, 240 Pac. 2d 780, decided by the Oklahoma Supreme Court.)

The court said that one who stores explosives in a place known to be accessible to children is bound to use care commensurate with the danger to the children, even though they be trespassers.



## Absconding Contractor Not Guilty of Larceny

**THE PROBLEM:** An Arkansas statute says that if anyone obtains money belonging to another and converts it to his own use he is guilty of larceny. Defendant had a contract to clear a dam reservoir. He employed subcontractors and laborers, who complained to him because they had not been paid. He had \$20,000 coming to him from the Government as a progress payment and promised them that when he cashed the check he would pay them. He cashed the check but absconded with the proceeds. Was he guilty of larceny?

**THE ANSWER:** No. (Lewis v. State, 247 S. W. 2d 195, decided by the Arkansas Supreme Court.)

It is to be noted this was a general statute defining as larceny acts resembling embezzlement by custodians of funds. The statute is not to be confused with other statutes in some states which make it a felony for a contractor to fail, under certain circumstances, to pay off lienable claims, thereby prejudicing the owner.

## Bid Conditions

**THE PROBLEM:** (1) Bidding spec required that work be completed as soon as possible and without unnecessary delay. Successful bid stated work would be commenced within ten working days and completed within 215 calendar days thereafter. Did that invalidate the bid, preventing an award to the bidder? (2) Spec stated that payment to contractor might be delayed until completion. The bid was conditioned upon payment on the 10th of each month of 90 per cent of the value of materials and work furnished during the preceding month. Did that invalidate the bid?

**THE ANSWERS:** (1) and (2) No. (Duffy v. Village of Princeton, 60 N. W. 2d 27, decided by the Minnesota Supreme Court.)

(1) The bidding spec included a form which committed the bidder to commence work within "— working days", and complete it within "— calendar days". Each bidder was free to fill in those blanks and no unfair advantage was given the one who didn't over the one who did.

(2) The court said the variation as to time for payment was unimportant, especially since there was nothing to show that the successful bidder would refuse to await completion for payment if payment was not made in compliance with the bid.

## Liable for Wall Collapse

**THE PROBLEM:** A building owner, in letting a contract to erect an adjacent building using the wall of the old one, required that, in excavating a 12-foot basement, the contractor underpin the wall by excavating 4-foot sections along the length of the way, with concrete poured in, in such way that at no time would more than three feet of the wall foundation be exposed. The contractor dug a trench the full length of the wall, which collapsed and entailed wrecking of the building. Was the contractor and his surety liable for the full amount of the owner's loss?

**THE ANSWER:** Yes. (Garden City Floral Co., Inc., v. Hunt, 255 Pac. 2d 352, decided by the Montana Supreme Court.)

## Corporate Officers' Right To Workmen's Compensation

**THE PROBLEM:** Two brothers owned a small corporation engaged in excavation and road building. In addition to their duties as officers of the corporation, they performed such duties as an employed foreman, superintendent, or other employee might perform, for which they were paid on an hourly basis. They flew to another town to inspect road-building equipment with a view to buying it. On the way back, the plane crashed and both were injured, one fatally. Were the survivor and the dependents of the other entitled to awards under the New Hampshire Workmen's Compensation Act?

**THE ANSWER:** Yes. (Hirsch v. Hirsch Brothers, Inc., 92 Atl. 2d 402, decided by the New Hampshire Supreme Court.)

The court said the mere fact the brothers were the stockholders, directors, and officers of the corporation did not prevent their being employees of the company, since they performed the functions of workmen. The evidence showed they worked eight-hour days at hourly wages, apart from the time they devoted to performance of duties as directors and officers of the corporation. The trip to inspect equipment was such as could be delegated to a qualified employee.

## Asphalt Worker Disabled

**THE PROBLEM:** An operator of an asphalt-distributing machine used in surfacing roads sustained a fractured arm while at work, preventing him from continuing his occupation because of a permanent limitation on the use of his arm. Was he entitled to an award under the Louisiana Employer's Liability Act for total and permanent disability, although he was able to drive a small truck?

**THE ANSWER:** Yes. (Wright v. National Surety Co., 59 So. 2d 695, decided by the Louisiana Supreme Court.)

## Liability of State To Refund Deposit

**THE PROBLEM:** The plaintiffs were low bidders on a New York State building project. They made an honest mistake in their bid on the item of brick work, using the fraction 8/12 to indicate the number of bricks per linear foot of each brick course, instead of the figures 12/8, the correct quantity per linear foot. The error involved more than 100,000 bricks. (1) Did the mistake equitably entitle the plaintiffs to withdraw their bid and \$7,500 deposit? (2) Did the State Supreme Court have jurisdiction of a suit to compel return of the deposit?

**THE ANSWERS:** (1) Yes. (2) No. Suit should have been brought in the State Court of Claims, which has jurisdiction over claims against the

state. (Psaty v. Duryea, 121 N. Y. Supp. 2d 703, decided by the New York Supreme Court, Appellate Division.)

The court dismissed the suit which was brought into the New York Supreme Court—the counterpart of district, circuit, and superior courts in other states—because the suit was in effect one against the state, and therefore entertainable only by the Court of Claims.

## Damages Allowed for Impairment of Credit

**THE PROBLEM:** A municipal water and sewer systems contractor sublet the drilling and equipping of wells. According to allegations made by the contractor and found by a jury

(Continued on next page)

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## Avoid Legal Pitfalls

to be true in a suit brought by the former, the subcontractor demanded full payment although it had not

substantially performed its agreement. The subcontractor filed a claim against the contractor's surety, unjustifiably asserting that the contractor was in fault. This impaired the contractor's credit and slowed down his heavy-construction busi-

ness. Did the evidence sustain the jury's award of \$95,038 damages?

**THE ANSWER:** Yes. (Page v. Layne-Texas Co., Ltd., 258 S. W. 2d 366, decided by the Texas Court of Civil Appeals, Galveston.)

The decision does not mean that if an owner, in good faith, claims reimbursement from a contractor's surety, to which it is later determined he is not entitled, or that if a subcontractor makes a similar claim against the prime contractor's surety, the owner in one case, or prime contractor in the other is liable in damages. But the decision is an important judicial precedent for saying that where the claim made against the surety is clearly unjustifiable and wantonly made, the offending party may be held liable for loss sustained by the aggrieved party as a natural consequence.

The court said that it seems to be the law that any willful and unjustified interference with the business of another, will justify an award of damages, although possibly it may not go far enough to constitute slander or libel.

### Mess-Hall Taxes

**THE PROBLEM:** Until amended, a California retail sales-tax statute exempted "employers or employee organizations serving meals exclusively to employees". The amendment extended the exemption to employers serving meals to "employees engaged in work upon a particular project". Were contractors who furnished mess-hall facilities, not only to their own employees but also to the employees of subcontractors, subject to tax as retailers of the meals served prior to the amendment?

**THE ANSWER:** Yes. (Twaits v. State Board of Equalization, 210 Pac. 2d 40, decided by the California District Court of Appeal.)

The court ruled that the amendment of the statute did not operate retroactively, so as to release liabil-

ity for taxes that had previously accrued.

### Federal Tax Liens

**THE PROBLEM:** Before and after a truck was bought under a conditional sale contract, the Government filed tax liens against the buyer. The contract was not recorded. Did the liens come ahead of the seller's claim where the truck was not paid for?

**THE ANSWER:** No. (United States v. Anders Contracting Co., 111 Fed. Supp. 700, decided by the United States District Court, W. D., S. C.)

The court said that to decide that the Government could take the property would unjustly enrich the Government at the expense of the seller.

### Man Off Duty Injured: Contractor Not Liable

**THE PROBLEM:** A pipeline-construction contractor gratuitously furnished army tents to some crew members who desired to use them off duty. One crewman was injured when a tent caught fire. Was he entitled to a workman's compensation award on the theory that the accident was sustained in the course of his employment?

**THE ANSWER:** No. (Thornton v. Louisiana-Mississippi Pipeline Construction Co., 58 So. 2d 795, decided by the Mississippi Supreme Court.)

The court quoted from a decision of the Connecticut Supreme Court of Errors which drew a distinction as regards an employer's liability for so-called "bunk-house" accidents. The distinction is according to whether housing accommodation is furnished as part of workers' agreed compensation or whether it is a gratuitous and optional accommodation, the employee not being required to avail himself of it. (Guiliano v. Daniel O'Connell's Sons, 136 Atl. 677.)

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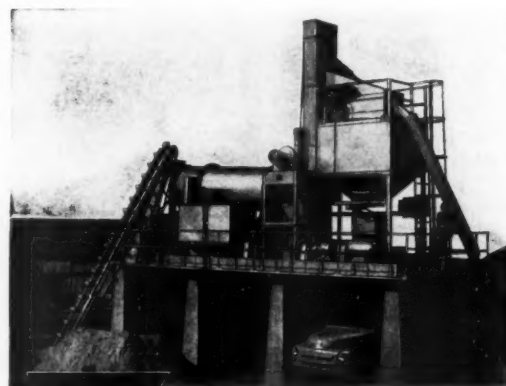
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## Distributor Doings



### "State" Serves 16 Counties

BOASTING AN ABILITY to consistently fill 90 per cent of its over-the-counter orders from stock is State Equipment Co., Inc., one of the largest dealers in construction machinery in upper New York State. Its main plant in Albany—it has other New York offices in Potsdam and Syracuse—serves 15 counties in eastern New York plus Berkshire County in western Massachusetts.

State's territory extends from Essex County in the Adirondack Mountains south to Greene County in the Catskills, and from the New England border on the east, southwest to the Pennsylvania line. The accounting department for all three offices is located in Albany, although the branches operate independently.

State had its beginning in Pennsylvania, where the State Equip-

ment Co., a separate corporation, still carries on in Harrisburg and in Kingston, which is across the Susquehanna River opposite Wilkes-Barre. Early in 1950, State was incorporated in New York State, starting business in rented quarters at Railroad and Dott avenues in West Albany. It moved to its present location at Stop 12, Albany-Schenectady Road, October 1, 1951.

One of State's first accounts was the Hough Payloader. International tractors and stationary engines were soon added. One of the major part-supply depots of International Harvester is located in Albany. Included among the firm's accounts are:

- Adams motor graders
- Allied cabs
- Anderson snow plows
- Bucyrus-Erie tractor equipment
- Carco winches
- Drott skid shovels and bullclams
- Frink snow plows
- Heil scrapers and earth-movers
- Hughes trailers
- Hughes-Keenan cranes
- Inley cranes and shovels
- Littleford road equipment
- Lodover tractor shovels
- Ottawa loaders
- Pullman-Standard tractor equipment
- Ready power generators
- Schramm compressors
- Superior pipe booms

In addition to selling new equip-  
(Concluded on next page)



Mechanics guide a Bucyrus-Erie attachment into place on an International diesel tractor.



Salesman points out features of an International TD6 at State's used-equipment lot.

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Send for This Handy Bulletin Shows typical installations of ROCKFORD CLUTCHES and POWER TAKE-OFFS. Contains diagrams of unique applications. Furnishes capacity tables, dimensions and complete specifications.

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JANUARY, 1954

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## Distributor Doings

ment, State also sells used machinery and maintains a rental department. Used equipment is displayed in a manner similar to that employed by used car dealers. In Albany, it is displayed on a lot across the highway from the plant in a thoughtfully arranged layout. Construction rentals are primarily of the heavier types of machinery. They generally include an option to purchase, which is a great aid in accelerating the turnover of used equipment.

The majority of State's business is with the construction and forestry industries. Logging equipment is

used mainly in the mountainous northern counties of the firm's territory and in the Berkshire hills of Massachusetts. Agricultural machinery is not handled.

Construction of the New York State Thruway, which passes close to Albany, has helped the equipment business in the area. Local dealers are benefiting mainly through the sale of sand and gravel, through the use of their quarry plants, and by meeting the needs of local subcontractors.

Most of the major contractors have come in from other states, bringing their own equipment. Therefore, equipment sales have not increased to any great degree. However, distributors such as State have been blessed with a greatly increased

call for service work and parts. In order to cope with the enlarged demands on its service department, State has recruited mechanics from as far away as central Pennsylvania.

### Modern Layout

State's Albany plant has an excellent location on the heavily traveled divided highway that runs on a direct line to Schenectady. There are two buildings on the 4½-acre site. At the front of the lot, facing the highway, is the main building. The forward part of the building houses the new equipment showroom, which is enclosed on three sides by plate glass walls that invite window-shopping. A long stock counter runs the width of the rear of the showroom. Behind

that is the well-supplied stockroom.

Along the south side of the structure are the offices, which are also enclosed by ceiling-high glass walls. Dark green interior walls contrasting with the light-colored venetian blinds add to the modern appearance. The floors are covered with asphalt tile, and light is supplied by up-to-date fluorescent fixtures.

Accounting and credit work for the three New York branches is done in Albany. Reports from Potsdam and Syracuse arrive by mail daily. The work is simplified by the use of such labor-saving devices as Monroe calculators and posting machines.

At the back of the main building is a 60 x 80-foot shop where equipment is serviced. Large doors at the rear and side facilitate access to the working areas. About 100 feet behind this building is a 60 x 80-foot equipment-storage warehouse made of concrete block.

### Personnel

The present working force at the Albany office numbers 32. Thirteen are mechanics, and five are salesmen who spend most of their time in the field covering their assigned territories. The remaining 14 include office personnel and key executives such as John Fremon, manager; Ralph Gasner, office manager; Charles Shuler, comptroller; Edward Gulden, service manager; and Stanley Harvey, parts manager.

One of State's extra-curricular activities is publication of the monthly *Eastern Construction Digest*, which contains company news and general items pertaining to the heavy equipment industry. The editorial office is in Harrisburg, and the *Digest* is made available through all five State offices in New York and Pennsylvania.

When questioned about the prospects for the equipment business during the coming year, a spokesman for State summed it up succinctly:

"We expect 1954 to be as good a year as 1953. However, we will probably have to take more trades and generally work harder as business returns to a more normal level." THE END

### Penn Machinery Representative

Assistant manager of the Mineola, L. I., branch of H. O. Penn Machinery Co., Inc., 140th St. and East River, New York 54, N. Y., for the past three years, L. J. Alexander has been promoted to sales representative in Nassau and Suffolk counties in New York.

The firm handles such machinery lines as Caterpillar, Bucyrus-Erie, Cleveland, Martin, and Heltzel.

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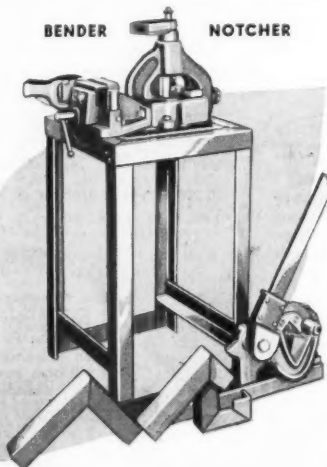
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CONTRACTORS AND ENGINEERS



### Clark Establishes Equipment Leasing Plan, Adds New Line

The Clark Equipment Co., Buchanan, Mich., manufacturer of material-handling equipment, now offers an equipment-leasing plan which will operate through its dealers on a national basis. Under the program, the dealer is the owner and lessor, with Clark providing the direct financing.

Equipment will be leased for a three or five-year period with each annual rental, payable in monthly installments, being a declining amount based on the approximate rental value of a machine of similar age. Included in most lease agreements is the dealer's regular preventative maintenance contract. At the end of the three or five-year period, the lessee has an option of extending the lease on a year-to-year basis.

Acquisition of the Ross Carrier Co. eight months ago has brought about the revamping of the Clark dealer organization. It is now handling the Ross line of straddle carriers and fork trucks.

Clark dealers who have added Ross products to their regular sales and service activities are the Industrial Truck Sales & Service Co., Greensboro, N. C.; the Lukas Equipment Co., Columbia, S. C.; the M-H Equipment Co., Birmingham, Ala.; Dempster Brothers, Inc., Knoxville, Tenn.; Whitmore Industrial Trucks, Tampa, Fla.; and Equip Co., Inc., Miami, Fla.

Also, Materials Handling, Inc., Pittsburgh, Pa.; the Fallsview Spring & Equipment Co., Baltimore, Md.; the C. E. Reutter Corp., New Haven, Conn.; Rushmore, Weber & Case, Inc., Latham, N. Y.; and Brodie Industrial Trucks, Inc., Malden, Mass., and Buffalo, N. Y.

### Miller-Robinson Distributes Sky-Worker on West Coast

The Hydro Sky-Worker, a maintenance and construction tool designed to work in difficult-to-reach places, has been introduced to the west coast as a result of the appointment of the Miller-Robinson Co., 7007 Avalon Blvd., Los Angeles, Calif., as distributor.

Sales will be under the direction of Robert D. Bennett, formerly central sales manager for Miller-Robinson. He will be assisted by Bernard Scheuer, formerly with the Tey Mfg. Corp., where he helped in the initial development and application of the Sky-Worker.

### Burnup Is New Galion Dealer

Robert H. Burnup, former mid-western district representative for the Galion Iron Works & Mfg. Co.,

Galion, Ohio, has become a distributor of Galion motor graders, rollers, and other types of construction equipment. His new business, the Burnup Equipment Co., is located at 11303 Truman Road, Independence, Mo.

### Atlas Mineral Names Dealer

Named to represent the Atlas Mineral Products Co. in the mid-west is O. A. DeCelle & Associates, 4900 W. Madison St., Chicago, Ill. The new dealer will promote the sale of Atlas water and sewer jointing materials in southeastern Wisconsin, northern Illinois, and Indiana.

The Atlas firm, located in Mertz-town, Pa., and Houston, Texas, manufactures a complete line of corrosion-proof construction materials.

### Hensley Appoints Distributors

The Hensley Equipment Co., Oakland, Calif., manufacturer of tractor attachments, appointed the Western Tractor & Equipment Co. a distributor of the Hensley line in Seattle, Tacoma, and Chehalis, Wash., and in Fairbanks and Anchorage, Alaska. Another distributor named was the Lively Equipment Co., Albuquerque, N. Mex., and El Paso, Texas.

### Rotary Lift Distributor


The Rotary Lift Co., Memphis, Tenn., designer and builder of hydraulic lifting devices, has appointed The Rucker Co., Oakland, Calif., as distributor of its industrial lifts for the states of Washington, Oregon, Idaho, Nevada, and Arizona.

### Mahar Is Carboloy Distributor

Mahar Tool Supply Co., Inc., Saginaw, Mich., has been named a dealer for the Carboloy Department of the General Electric Co., Detroit 22, Mich. The firm will carry Carboloy's entire line of standard cemented carbide tools and blanks, carbide-tipped masonry drills, and diamond wheel dressers.

### Maginniss Names Two Dealers

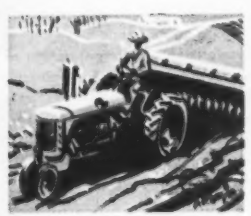
Two new distributors have been named by the Maginniss Power Tool Co., Mansfield, Ohio, to handle the firm's line of concrete vibrators and generators. They are Machinery, Inc., 2855 Piedmont Road, Charleston, W. Va., and the Southern Gateway Co., 2200 Losantiville Ave., Cincinnati, Ohio.




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For tractors and implements...

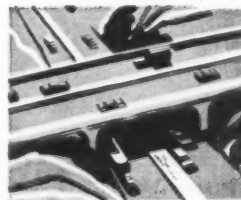


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## NEW HYATT BARREL BEARING!

You're looking at a cross section of industry's newest find—the bearing that's built with barrel-shaped rollers! Developed by Hyatt, the Barrel Bearing is of true dual-purpose design—it takes load from any direction. But more than that, the Barrel Bearing is self-aligning—and misalignment of supporting parts cannot cause excessive wear, as it does with ordinary bearings. Now in volume production, this new bearing is in the newest trucks and busses, in farm, textile and construction equipment, and in many types of oil field machinery. In fact, if you own a new car there's a good chance that Barrel Bearings are in the wheels and differential.



for construction equipment and many types of new machinery.

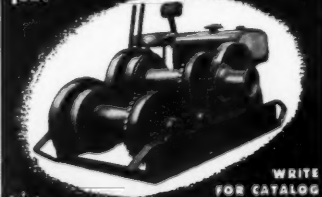
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JANUARY, 1954



The Burch paver and resurfacer mixes, spreads, and levels in one operation.

### Bituminous Paving Unit

■ A paving and resurfacing machine that will mix and lay any type of bituminous material is made by the Burch Corp., Crestline, Ohio. The hydraulically powered Model 12 mixes, spreads, and levels bituminous paving material in a strip 10 to 12 feet wide in one operation. The machine will conform to any type of grade and will handle material from 45 to 200 pounds per square yard in one pass.

A feature of the machine is that its entire frame can be lifted so that a clearance of 10 inches may be had between the ground and the mixing blades and strike-off blade. The front mixing blades are arranged to gather the material and to roll it towards the center of the unit where the center mixing blades will mix it and respread it. These blades then roll the material towards the outside where it is picked up by the rear mixing blades, mixed, and rolled in towards the center of the machine, creating a windrow.

The dividing blade behind the rear mixing blades then distributes the material in the windrow either towards the right or left as required for proper distribution by the strike-off blade. The material is rolled and mixed four times before the strike-off blade acts on it.

For further information write to the company, or use the Request Card at page 18. Circle No. 615.

### Highway Board Bulletin

A bulletin containing four papers dealing with methods and costs of traffic surveys, entitled "Origin and Destination Surveys", is available from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

The first paper presents the detailed costs of a metropolitan traffic survey, including an internal and external origin-and-destination survey and a parking study. The second reports the procedures and analyses used to determine the comparative validity of the postcard and roadside-interview methods of O and D survey.

An appraisal of the sampling errors in the estimates of trip frequencies and the practical application of sampling to actual field conditions is covered in the third paper. The last report gives the results of an O and D study used to determine the field procedures of interviewing.

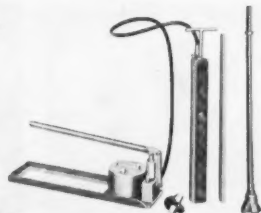
The 68-page booklet, Bulletin 76, is available at a cost of 90 cents.

### WHEN THE MAN SAYS NO BLASTING

Use a  
**DUNCAN**  
hydraulic

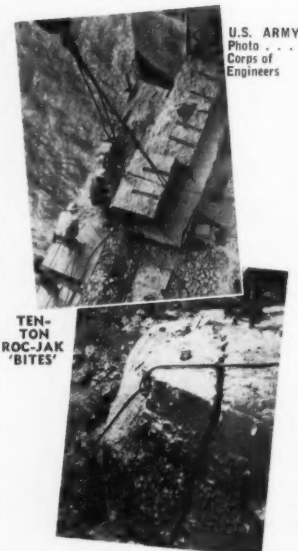
### ROC-JAK\*

for heavy CONCRETE demolition



### The DUNCAN ROC-JAK\*

performs a quick economical job in the demolition of mass concrete or exposed face ledge rock where the use of explosives or ball drop is prohibited or impractical. The DUNCAN ROC-JAK . . . rugged and of simple operation will function in any position. Noiseless, dustless and safe.



U.S. ARMY  
Photo  
Corps of  
Engineers

TEN-  
TON  
ROC-JAK  
'BITES'

\*ROC-JAK Registered  
U.S. Patent Office

Write for complete information  
and price.

**K. O. DUNCAN COMPANY**  
10515 LAURISTON AVENUE  
Los Angeles 64, California

## dart VIBRATORS ARE DEPENDABLE!

Dart's new GM 240-D Vibrator motor features double bearing suspension, pre-spun armature winding and electrically balanced armature for smooth running and long life. Protected against low voltage damage too.



Dart  
GM 240-D  
Electric

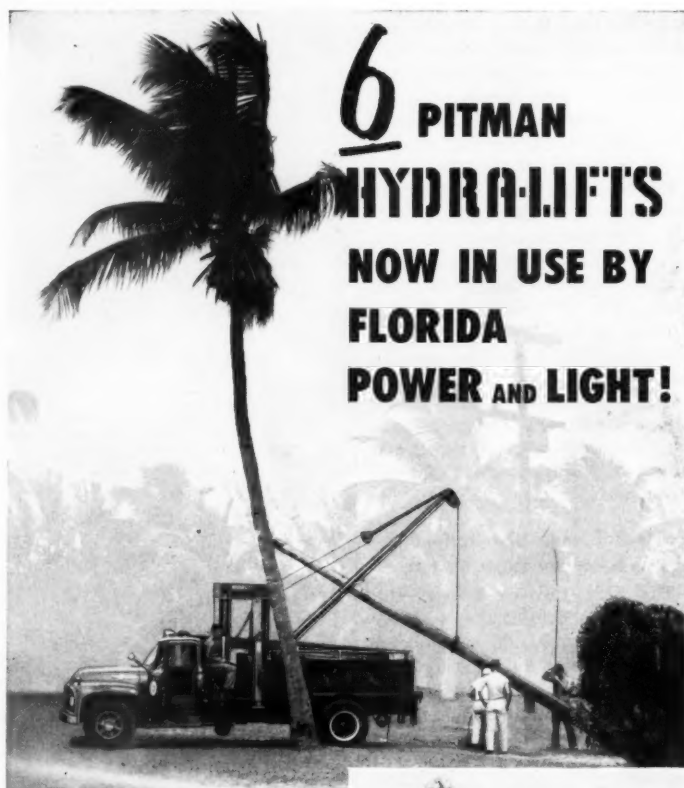
Every Dart unit is precision engineered and built to heavy duty service specifications. Dart offers both gasoline and electric models—a size for every concrete vibrating job.

Watch for New Models—High Amplitudes  
—Form Vibrators and  
Air Vibrators.

See your Dart dealer or write now for  
complete literature.

**DART MFG. & SALES CO.**

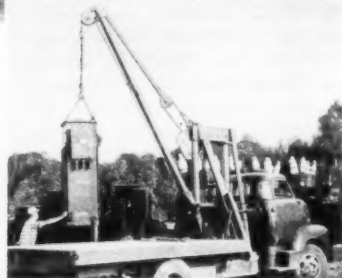
1246 Champa St., Denver



Like many other Pitman Hydra-Lift owners, Florida Power and Light Company bought one Hydra-Lift, gave it an on-the-job test . . . and arrived at one conclusion—they wanted more of these versatile, highly mobile truck cranes in their company's equipment fleet.

Today Florida Power and Light, progressive utility company powering so much of Florida's rapid growth, has six Hydra-Lifts. These Hydra-Lifts are kept busy constantly on a whole host of lifting jobs encountered daily in keeping pace with increasing power needs in the Sunshine State.

Hydra-Lift converts your truck into a husky, highly mobile truck crane. Hydra-Lift gives you 6400 pounds capacity on a power swinging boom that telescopes from 12 to 22 feet. Yet Hydra-Lift requires but 40



inches behind the cab of your truck. Hydra-Lift gives you the highest possible degree of mobility in a truck crane, plus the ability to use the truck for hauling purposes. Whatever your lifting and hauling job . . . poles, transformers, spools of cable, pipe, pumps, valves and fittings, stone, steel . . . yes, whatever your job, it will pay you to investigate Hydra-Lift. Write today for full details.

## PITMAN MANUFACTURING CO.

300 WEST 79TH TERRACE

KANSAS CITY, MO.

CONTRACTORS AND ENGINEERS





The new Eimco 105 tractor-loader is the heaviest model in the line made to date.

### Tractor-Excavator Has Separate Track-Travel

■ A new and heavier Eimco tractor-loader features an improved transmission that contains in one compact unit all the gearing and clutches for speed changing and independent reversal of each track. All movements of the tractor are controlled with two small convenient handles located in front of the operator. The ability to run one track forward and the other reverse provides maneuverability not possible in earlier units. The Model 105, described by the manufacturer as a heavy prime mover, is designed for full oscillation of tracks even when the loading attachment is used.

Although the loader of the new unit is designed with the same rocker-arm principle, featured in previous Eimco loaders, certain modifications have been made. The new model loader is driven from the front power takeoff of the engine and has a two-speed transmission of the same general type as that of the tractor.

Low speed is recommended for heavy excavation, while for long discharge into big trucks the bucket may be shifted to high speed during its travel. For loading small trucks the low speed is used during the entire loading cycle. The rocker-arm loading action of the machine has been designed to give a more efficient loading cycle with more thrust in digging.

Among other design features is the operator's seat well up front for best visibility. The power unit faces the rear and is located at the center of the machine. Present models use a 90-hp diesel engine with matched torque converter. All parts, such as the transmission case and final drive cases and covers are of heavy cast alloy or fabricated steel.

For further information write to the Eimco Corp., 634 S. Fourth West St., Salt Lake City, Utah, or use the Request Card at page 18. Circle No. 535.

**get MORE PROFIT** from men and machines  
...cut between-job travel time

with  
**MILLER  
Tilt-Top!**



This big, rugged trailer loads dozers, rollers and other cumbersome equipment in less than two minutes. Ground and platform merge into one surface... for the easiest loading of heavy equipment you have ever tried. With Miller Tilt-Top just one man loads... is off to the next job, with no lost motion. Miller's faster loading, quick maneuverability provides more time on the job, less time between jobs... increases your profit from every operator, every machine every day.

**MILLER**  
research engineers

456 S. 92nd Street, Milwaukee, Wis.



**handier  
easy-to-back  
priced right**

Model "B" 10 ton \$1175\*

Optional equipment (priced extra)  
16' long platform (8'x14' standard),  
hydraulic tilt control, 2 speed hand  
winch and electric brakes.

\*Plus freight and Federal Tax.

MAIL TODAY

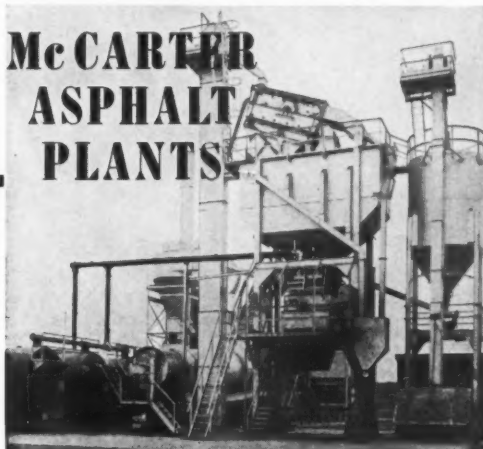
Name .....  
Company .....  
Street .....  
Town ..... State.....

### ASCE Branch Elects

In recent elections of the Santa Barbara-Ventura counties branch of the Los Angeles section, American

Society of Civil Engineers, P. O. Box 901, Oxnard, Calif., Robert L. Ryan was elected president; R. E. Burnett, vice-president; and George Conahy, secretary-treasurer.

## Mc CARTER ASPHALT PLANTS



### Truly Balanced Plants of 2000 to 6000-lb. Mixer Cap.

● McCarter... backed by 20 years' experience... designs and manufactures this equipment in their own works, assuring standardized parts and minimum costs.

● McCarter standard plants are readily adaptable to your special requirements. Individual units are also available.

**DRYERS** (Hot or hot and cold material, center outlet type)

**MIXERS, ASPHALT BUCKETS** (Steam, hot oil or electric heated)

AGGREGATE HOPPERS,  
BINS, APRON TYPE  
FEEDERS, CYCLONE  
COLLECTORS,  
ELEVATORS, STEEL  
STRUCTURES

**REPAIRS AND MODERNIZING**  
We specialize in remodeling  
old plants for better production  
and more efficient operation.

**Mc  
CARTER**

CALL FOR ONE OF OUR ENGINEERS TO  
GO OVER YOUR PROBLEMS WITH YOU

**IRON WORKS, INC., Norristown, Pa.**

## GRAVEL DEPOSIT AVAILABLE AS JOINT BUSINESS VENTURE

Gravel Deposit of 23 Acres Available 25 Miles from Boston  
20 Additional Acres Under Option

70% Stone — 30% Sand — Meeting Highest Tests  
(Thompson & Lichtner reports available)

Property located on Route 85 in Southboro. Three miles from Framingham line.

### WANTED

TO PURCHASE AND OPERATE ON A 50-50 BASIS, SAND AND GRAVEL CRUSHING AND WASHING PLANT — NEW OR USED — WITH 2 CRUSHERS TO PRODUCE 600 TO 800 TONS DAILY. Have you any good crushers, shaker screens, bins, conveyors, pumps, belting, motors and drives for sale?

### WANTED ALSO

A READY-MIX CONCRETE COMPANY TO SET UP PLANT ON OUR PROPERTY, RAILROAD SIDING, 1 MILE FROM DEPOSIT, TO WHOM WE WILL SELL AGGREGATE ON LONG TERM BASIS. Tests and borings assure 800 gallons of water per minute. All zoning laws and necessary permits complied with.

Ideally located for furnishing materials for toll road. Also ideal site for Concrete Pipe plant, Cement Block plant and Hot-top plant.

New proposed toll road to pass within 400 yards from our deposit. Centrally located twenty miles from Newtonville, Worcester, Waltham and Franklin. Large deposit and site for hot-top plant available near proposed toll road. Also 60 acres of fill for new toll road right on site.

Location has been approved by Toll Road Authority and Mass. Dept. of Public Works and bids will soon be advertised.

## FRAMINGHAM SAND & GRAVEL CO., INC.

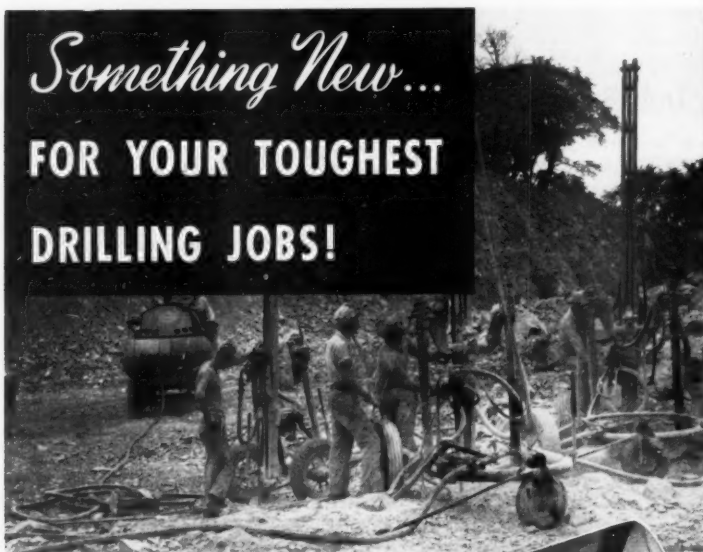
83 CONCORD ST., FRAMINGHAM, MASS.

Phone: FRamingham 2-1294  
Evenings—WELlesley 5-2044



This special chassis by Freightliner was designed for hauling premixed concrete.

## Something New... FOR YOUR TOUGHEST DRILLING JOBS!



## "HARDROK" Wire Braid AIR HOSE

Assurance of longer service life, with consequently lower replacement costs, recommends "HARDROK" wherever severest drilling conditions call for a truly *super-strong* air hose.

The carcass is made of horizontally braided steel wires, providing exceptional strength, durability and resistance to kinking, without impairing flexibility. The long-lasting Synplastic tube is impervious to the action of oil from the drill. The cover is a tough, wear-resistant yellow rubber compound. A black spiral stripe gives the hose a distinctive appearance for easy identification. Sizes 1/2" to 2", inclusive. Contact our nearest branch for details and prices.



### GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.  
Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul  
Los Angeles • San Francisco • Seattle • Spokane • Portland • Salt Lake City • Denver  
Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

## Truck Chassis Designed To Haul Concrete

■ A new-type truck chassis for hauling premixed concrete was recently built to customer specification by the Freightliner Corp., Portland 5, Oreg. A special design feature is a one-man cab over the left front wheel that gives the driver all-around visibility in traffic and at the construction site. The cab is 62 inches high, 34 inches wide, and 48 inches deep. The engine compartment has been made easily accessible with a hinged hood that tips forward. A hinged plate in the deck behind the engine gives easy access to the clutch, transmission, and other components.

The truck, which has six-wheel drive and power steering, will carry 6 cubic yards of concrete. It is powered with a White 160AX gas engine with Mustang intake and exhaust manifolds. The unit has a Clark 270 transmission, a Timken-Detroit T-76 transfer case, a Timken-Detroit SD 3010 double-reduction dual drive, Spicer 1600 Series drive lines, Timken-Detroit F-3200W front drive axle, and Garrison power steering.

The wheelbase of the unit is 186 inches and the over-all chassis length is 243 1/4 inches. Weight is distributed so that 11,400 pounds are on the front axle with the truck loaded.

The chassis was designed by Raymond J. Seelie, fleet superintendent for the Pacific Building Materials Co. of Portland, Oreg., for which company the truck was built.

For further information write to the company, or use the Request Card at page 18. Circle No. 570.

## Galion Personnel Changes

James M. Borrer has been named western sales manager, and J. H. Tiller has been named southern sales manager by the Galion Iron

Works & Mfg. Co., Galion, Ohio, manufacturer of motor graders and rollers. Robert C. Monnett continues as sales manager for the north-central and eastern states.

All three regional sales managers will be located in Galion, Ohio.

Virginia and West Virginia, along with Delaware and New Jersey have been taken over by John C. Painter, who has relinquished New York State. He retains Pennsylvania, Maryland, and the District of Columbia. His headquarters are in New Cumberland, Pa.

D. L. Gillispie has given up New Jersey and Delaware and has taken over New York State. He will continue to cover the six New England states. He makes his headquarters in Pittsfield, Mass.

Tennessee and Kentucky have been added to the territory of H. L. Moody, who has been covering Louisiana, Mississippi, Alabama, and Arkansas. Mr. Moody makes his headquarters in Little Rock, Ark.

Rex F. Price will cover the states of Oklahoma, Nebraska, Kansas, Missouri, and parts of Illinois. William A. Beale takes over the southwest territory of California, Arizona, New Mexico, Colorado, and Nevada.

Mr. Price is located in Kansas City, Mo., while Mr. Beale is located in the Los Angeles area.

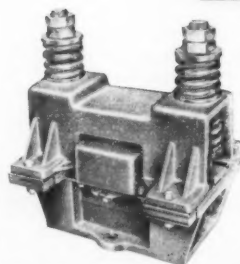
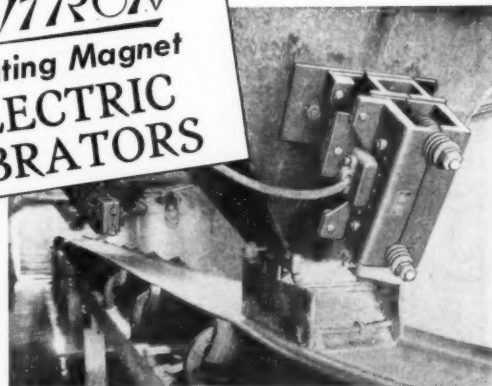
## Ice and Snow Remover

■ A catalog on Melt, a chemical ice and snow remover, is announced by the Chem Industrial Co., 3784 Ridge Road, Brooklyn 9, Ohio. The booklet recommends Melt for use in de-icing railway switches, drains, gutters, and for removing hazardous ice on loading docks, sidewalks, drives, and parking lots. Prices for the various package sizes of the chemical are also listed.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 656.

## SYNTRON Pulsating Magnet ELECTRIC VIBRATORS

Assuring steady flow of crushed stone from hopper to belt conveyor.



## For Free Flowing Bins — Hoppers — Chutes

Eliminate clogging, arching or plugging of bins, hoppers and chutes. Their 3600 vibrations per minute mean a positive flow of fine powders or large chunks for high speed, low cost handling of bulk materials.

WRITE FOR COMPLETE  
CATALOG DATA—FREE

**SYNTRON COMPANY**  
227 Lexington Ave. Homer City, Penna.

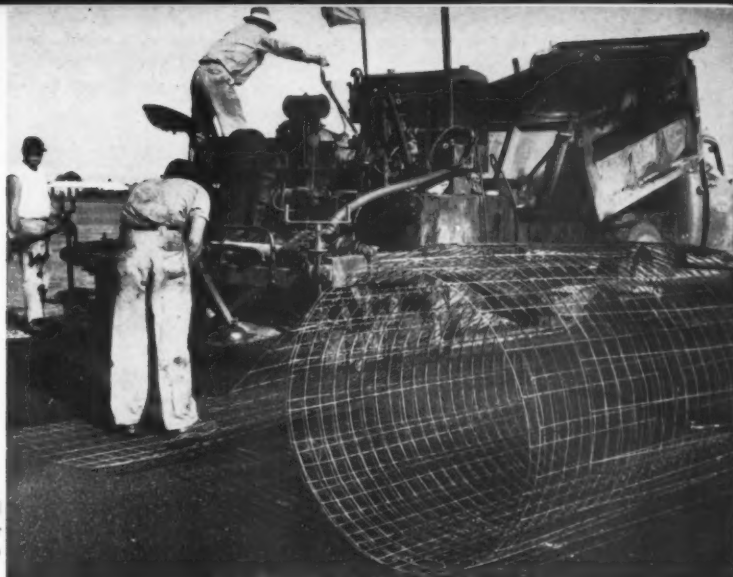
CONTRACTORS AND ENGINEERS



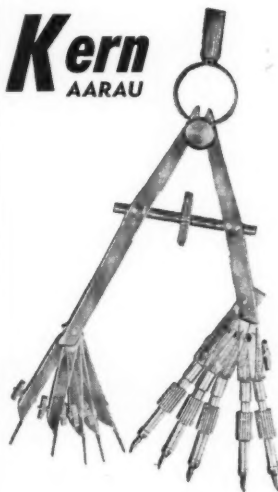
# Welded Wire Fabric For Airport Paving

*Mesh used to cover transverse joints in asphalt resurfacing of portland-cement concrete runway*

A Barber-Greene paver spreads the second course over the welded wire fabric. Worker in the foreground stands on the mesh to keep it flat.



## ANCIENT CHINA . . .



## BUILDS FOR THE FUTURE!

Out of rough, crude instruments an early civilization was born . . . painfully, hesitantly . . . almost intuitively.

Today's draftsman builds with far greater certainty . . . with an exactness that his early predecessors never dreamed possible. You have but to reach for your Kern precision drawing instruments confident that you are receiving perfect accuracy . . . absolute precision . . . the finest instruments of our modern age. Set prices from \$15 to \$100.

Write Today For Free Descriptive Literature and Catalog on Sets and Individual Pieces.

At your nearest dealer, or write direct to:

**KERN DRAWING INSTRUMENT  
DIVISION**

Borden & Riley Paper Co.

60 East 11th Street, New York, N. Y.

USE OF WELDED WIRE fabric in an asphalt runway topping was made this fall at the Indianapolis (Weir Cook) Municipal Airport in Indiana. The fabric was rolled out along the transverse expansion joints between slabs of the existing portland-cement concrete runway. Welded wire fabric is usually laid in sheets, longitudinally, in the direction of the paver.

The resurfacing project, part of the airport's rapid expansion program which will culminate in a new terminal building by the fall of 1955, is aimed at eliminating joint maintenance at the busy air center. It is hoped that laying welded wire fabric over the older pavement's transverse joints—many of which are 1½ inches wide—will maintain the continuity of the asphalt and prevent cracks from striking through the new surfacing.

## A 2,500-Foot Job

Over 2,500 feet of the heavily used main runway was resurfaced, with the fabric going over most of the

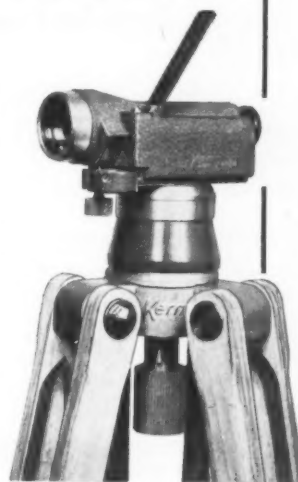
existing expansion joints. For purposes of later comparison, the fabric was omitted from some joints. Stakes in the grass adjacent to the runway indicate the presence or absence of the mesh.

The runway was originally paved in 1931, with 6 inches of portland-cement concrete reinforced with welded wire fabric. Only 120 square yards of this pavement had to be replaced in preparation for the resurfacing. Of this, two sections were found in which the fabric had been entirely omitted—by accident or design. The original pavement was designed for 20,000-pound gross load factors, ample for the lighter planes of the '30's. In general, it has successfully withstood the much greater loads—up to the Constellation's 94,000 pounds—which today's planes impose.

After the preliminary preparation of the base, the 1¼-inch-thick first course of coated aggregates, heated to a 180 to 240-degree range, was laid and rolled over the entire width

(Concluded on next page)

## PERFECT PRECISION FOR BUILDING



**Kern  
AARAU**

## GKO LEVEL

The ideal small builder's level, the GKO includes features usually found only in larger instruments. Compact, simple yet amazingly well constructed . . . the GKO is perfect for all building site work . . . equally effective for technical levelings and stadia surveys in flat country. Complete with mirror for bubble reading, tilting screw, jointed-head tripod and both bull's-eye and tubular level.

**\$163**

with fixed leg tripod.  
\$178 with extension  
leg tripod.

GKO-C: the same instrument with movable horizontal circle graduated into 360°.

Complete Service Department  
Factory Trained Personnel

## KERN SURVEYING INSTRUMENT DIVISION

Paul Reinhart  
Co., Inc.

68CE Beaver St., New York City

Wherever Engine  
**POWER**  
is Needed . . .



Single cyl.  
3 to 9 H.P.



2-cylinder,  
7 to 15 hp.



V-type 4-cyl.  
15 to 36 H.P.

## WISCONSIN Air-Cooled ENGINES

### Fit the Job and the Machine

Because Wisconsin Air-Cooled Engines are supplied in a complete power range, from 3 to 36 H.P., in 4-cycle single cylinder, 2- and 4-cylinder types, there is an ideal size to fit all types of machines and power applications within this range, without wasted power and with maximum power service benefits. Heavy-duty construction, combined with extremely compact design and light weight are added advantages—and dependable AIR-COOLING permits trouble-free service under all climatic conditions.

Specify Wisconsin Heavy-Duty Air-Cooled Engines for the utmost in power satisfaction. Write for descriptive data.



## WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

A 7111-1/2-R-5

(Continued from preceding page)

of the runway for the length of the project. Next, the fabric, No. 10-gage cold-drawn steel spaced 3 inches longitudinally and 6 inches transversely in 100-foot rolls 5 feet wide, was placed over the now-

covered expansion joints. Stakes in the adjacent grass marked the position of the joints and guided the placing of the fabric.

#### Laying the Fabric

There was a 2-foot clearance on either side of the 104-foot runway.

Wire staples were used to hold the fabric in place at the start of each roll, with only enough mesh unrolled for a single pass of the paver. As each succeeding pass was made, more fabric was unrolled, and shovelfuls of asphalt were thrown onto it in advance of the Barber-Greene paver, to help keep the mesh in place.

Workers also stood on the free ends of the fabric, when necessary, to keep it from catching in the paver. With these precautions, no trouble was encountered in the paving-over-fabric operation.

The second course of coated aggregates, also 1 1/4 inches thick, was then spread, rolled, and finished off with Seal Cote, 0.2 gallon per square yard, and No. 12 limestone chips. 15 pounds per square yard. The chips, heated to 215 degrees, "fried in" to the surface to form a hard, tough coating.

#### Results

Initial inspection of the runway, which supports up to 600 plane movements daily, indicates that cracks are already forming only over the transverse joints which have not been covered by the welded wire fabric. Thus far, the use of the mesh appears to be successful. By spring, after a full winter of rough usage, more definite conclusions about the effectiveness of the fabric can be reached.

THE END

#### Handling Equipment For Building Materials

■ A brochure showing material-handling equipment for building materials dealers has been announced by the Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore. The booklet describes handling methods in a dozen representative building supply houses in every part of the country. It is illustrated with on-the-job scenes.

To obtain Form No. 1238 write to the company, or use the Request Card at page 18. Circle No. 654.



Diamond blades that are able to cut soft groggy materials are now available from the Clipper Mfg. Co., 2803 S. Warwick, Kansas City 8, Mo. Up to now, such blades were recommended only for the cutting of hard vitreous materials such as face brick, glazed tile, and glass block. The development of a metal alloy bond that securely holds diamond particles to the cutting edges of the new blades makes the blades useful on softer masonry materials such as concrete block, soft tiles, and pumice block. For further information write to company, or use the Request Card at page 18. Circle No. 651.

Use Swenson self-feeding material spreaders for fast, easy application of salt, chloride, sand, cinders, gravel or a combination of these materials

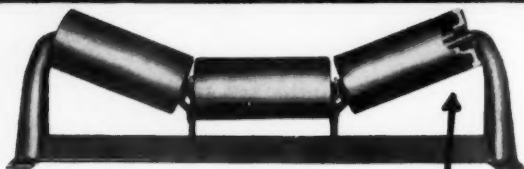
Free Information

Swenson Spreader & Mfg. Co.

Lindenwood, Illinois

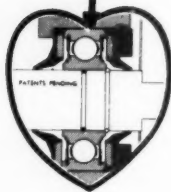


## BELT CONVEYOR IDLER NEEDS NO RE-LUBRICATION



### SEALED BEARINGS HEART OF IDLER

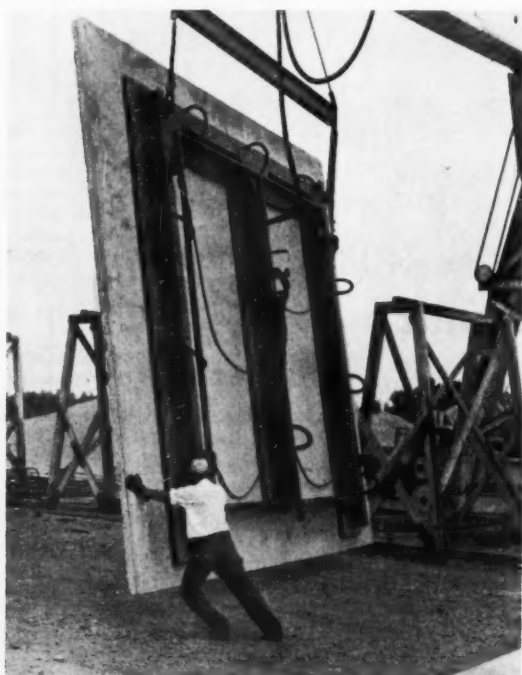
The heart of Transall's Tran-Seal Belt Conveyor Idler is its precision ground, heavy duty ball bearing. Each bearing is protected by 4 service-proven synthetic rubber seals. The bearing is permanently lubricated at the factory and never needs re-lubrication. For details, write TRANSALL, INC., 119 N. 11th St., Birmingham, Alabama.



Cross section of bearing showing 4 seals which keep lubrication in and dirt out.

(120-Q)

SECTIONAL BELT  
**TRANSALL** CONVEYOR  
SYSTEMS



Contractor: Concrete Casting Co., Kansas City, Mo.

## MAGIC CARPET

### FOR CONCRETE HANDLING

### THE VACUUM LIFTER

No inserts or strongbacks to adjust . . . a turned valve does the work. Harnessed atmospheric pressure provides temporary reinforcement—eliminates point stresses and the need for additional steel.

EARLY STRIPPING — EARLY ERECTION

**VACUUM CONCRETE, INC.**

4210 Sansom Street, Philadelphia, Pa.

#### Soil-Cement Construction

Individual copies of the fifth edition of "Essentials of Soil-Cement Construction", published by the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill., are available from the association without charge on request originating in the United States or Canada. The 21-page handbook is designed as a review for practicing engineers and a short text for schools and classes on soil-cement.

After an introduction to and a summary of the soil-cement process, the handbook goes into detail concerning the materials used and their quantities. Tests to determine the cement and moisture content and the proper compaction or density are described. This is followed by the outlining of the step-by-step procedure in soil-cement construction, including initial preparation and processing.

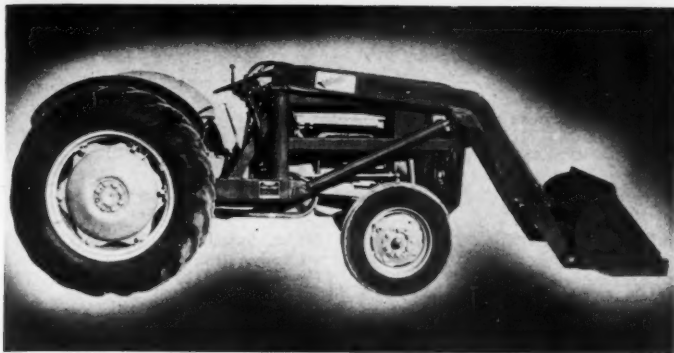
Sections are devoted to special construction items, notes on design, and other uses for the process besides road building.

#### The Safe Use of Ladders

■ A pamphlet that makes recommendations for choosing the right ladder for every job is available to contractors. Sections are devoted to safety, long service, and the care and inspection of ladders. The booklet closes with a discussion of what to do and what not to do in using ladders. This literature is available free of charge from the American Ladder Institute, 666 Lake Shore Drive, Chicago 11, Ill.

The organization is also a joint sponsor with the National Association of Mutual Casualty Companies and the American Society of Safety Engineers in developing through the American Standards Association, the American Standard Safety Code for portable wood ladders. A single copy of this code may be obtained by writing to the institute on a business letterhead and enclosing 9 cents to cover postage and wrapping.





### A New Front-End Loader

■ A new hydraulic tractor-shovel is announced by the Henry Mfg. Co., 1700 N. Clay St., Topeka, Kans. The loader uses the same reservoir, pump, valve, and cylinder systems as the company's backhoes. This will enable dealers to offer a complete Henry tractor-mounted unit with both front and back equipment.

The front-mounted pump has anti-friction bearings. A self-centering control valve has one lever for lift and one for dump. The cylinders

are arc-welded to the trunion, with replaceable bronze bearings. Cast iron pistons, with nonmetallic rings, minimize scoring and make for a tight seal.

The tractor shovel is of welded all-steel construction. The bucket is suitable for use on earth, mud, rock, sand, gravel, and snow.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 610.

## Is Our Face Red for Selling Ourselves Short

IF IT'S A



PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY



**WELLPOINT CORP.**

881 East 141st Street, New York 54, N. Y.  
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

Last month we ran a house ad in **CONTRACTORS AND ENGINEERS** featuring eighteen pump manufacturers who advertised in our publication last year. But horror of horrors, the ad failed to include Griffin Wellpoint Corp., whose advertising appeared every month in 1953 and who began advertising in C&E way back when. Our apologies to the Griffin organization for this unfortunate omission.

The full list of **CONTRACTORS AND ENGINEERS** 1953 pump advertisers reappears below. It now also includes Novo Engine Company who began a schedule in the December issue after our ad was placed.

This makes the count of pump firms an even twenty for the year, more than any other magazine in the field. Whether it's pumps, pavers, pile hammers, or pipe that interest you, truly C&E is the marketplace of modern construction.

### 1953 Pump Advertisers in CONTRACTORS AND ENGINEERS

Barnes Manufacturing Co.  
Ralph B. Carter Co.  
Carver Pump Co.  
Chain Belt Co.  
Chicago Pneumatic Tool Co.  
Cleco Division of the Reed Roller Bit Co.  
Complete Machinery & Equipment Co.  
Construction Machinery Co.  
Essick Manufacturing Co.

Foundation Equipment Corp.  
The Gorman-Rupp Co.  
Griffin Wellpoint Corp.  
The Jaeger Machine Co.  
Marlow Pumps  
Novo Engine Co.  
Ingersoll-Rand Co.  
Ohler Machinery Co.  
Rice Pump & Machine Co.  
Sterling Machinery Co.  
Worthington Corp.

# TRADING POST

## CLASSIFIED ADVERTISING

An advertising inch in the Trading Post is measured 1/4-inch vertically on one column. Space reservations close in the New York office on the 10th of the month preceding publication. Send your classified copy to:

The Trading Post, Contractors & Engineers  
470 Fourth Avenue, New York 16, N. Y.

### IMMEDIATE DELIVERY

- 1—Allis-Chalmers Model B tractor with mower.
- 1—Allis-Chalmers AD-3 Motor Patrol completely rebuilt & guaranteed.
- 1—Novo traffic line marker.
- 1—Buckeye Model 402 Ditcher.
- 1—A-C Model HD5G Front End Loader. Completely rebuilt.
- 1—Sasgen Dual Drum Hoisting Unit, New Condition, Low Price.
- 1—Adams 414 Motor Patrol, fair condition.
- 1—3/4 yd. Backhoe attachment for 3/4 yd. P & H Crane. New.
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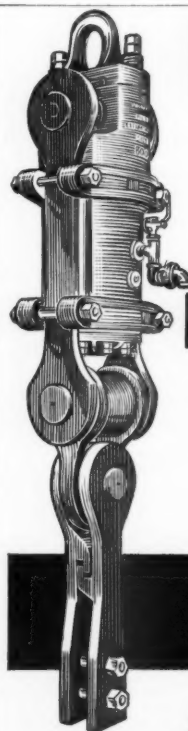
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# Manufacturer Memos

## Allis-Chalmers News

Willis G. Scholl, vice president in charge of the tractor division, has been elected to the board of directors of Allis-Chalmers Mfg. Co., Milwaukee, Wis. Mr. Scholl, who started with the firm as a salesman in 1936, has held his present position since 1952.

The newly created position of motor grader sales manager in the industrial sales department of the tractor division has been filled by Neil Pohl, formerly industrial sales manager at Kansas City.

S. L. Myers has been appointed industrial district manager for the

upper New York State territory of the division. He was in charge of export sales for the LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa, at the time of that firm's acquisition by Allis-Chalmers. He will make his new headquarters in Syracuse.

## Hercules Office Moves

The New York City branch sales offices of Hercules Powder Co., Inc., Wilmington 99, Del., manufacturer of explosives and other chemical products for the construction industry, have been moved. They are now located at 380 Madison Ave., New York 17, N. Y.



John E. Carroll of the American Hoist & Derrick Co.

## Carroll Succeeds Washburn As Head of American Hoist

The former vice president of sales of the American Hoist & Derrick Co., St. Paul 1, Minn., John E. Carroll, has been elected president of the

concern, succeeding Harold O. Washburn. Mr. Washburn has been elected chairman of the board of directors.

Also elected were James F. Bishop as vice president and treasurer, and D. B. Botkin and R. J. Stoddard as vice presidents.

Mr. Carroll started with American Hoist in 1937 as a district salesman. He later resigned to become a partner in the Harron, Rickard & McCone Co. of southern California, where he headed the construction equipment division. In 1949, he returned to American Hoist as general sales manager.

After graduating from the engineering school of the University of Michigan in 1911, Mr. Washburn came to American Hoist as a special apprentice. He was elected to the board of directors in 1928. He was elected president in 1945.

**By any yardstick —**

## Transmission Life up 100%



Pulling away from the shovel with 50 tons on its back, this ILLD Euclid hauls for the dumping site at 25 mph. Thirty of these "Eucs," each with two TORQMATIC DRIVES, hauled more than 1,000,000 yards a month for Western Contracting Corporation on the Fort Randall Dam project.

By any yardstick — miles, hours, ton-miles — truck transmissions last twice as long for Western Contracting Corporation since switching from direct-drive trucks to units equipped with Allison TORQMATIC DRIVES. And "Rip" Collins, Project Manager, gives his TORQMATIC Converter-Transmission teams a major share of the credit for his perfect safety record in 1952: No time lost due to accidents in 740,000 man-hours worked.

Western's fleet of 30 Model ILLD Euclids works 20 hours a day, 6 days a week. Making 700-900 trips per shift on a 3-mile round-trip run, these "Eucs" have hauled 6½-million yards of earth in six months' time. They

climb 20% grades with 50 tons on their backs.

The TORQMATIC Converter absorbs harmful shock loads, protects drive lines, transmissions, differentials and other truck components. With no clutch pedal to push and only 3 forward speeds—instead of the usual 7 or 10—drivers quick-shift at full throttle and keep their eyes on the road, not on the gearshift.

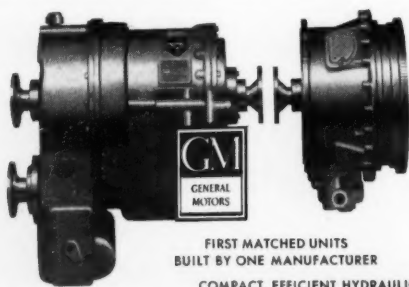
If you are in the earthmoving business, do it better and at less cost with Allison TORQMATIC DRIVES in your units. Ask your equipment dealer, manufacturer or write:

Allison Division of General Motors  
Box 894C, Indianapolis 6, Indiana

## ALLISON TORQMATIC DRIVES

Unbeatable Team for Maximum Operating Economy

- Quick-Shifts at full throttle with fingertip hydraulic control
- Holds power to load at all times — no clutch pedal to push — no gearshift guess
- Reduces maintenance costs by absorbing shock — eliminates engine lugging — prolongs equipment life
- Only torque converter-transmission team designed to work as a unit and built by one manufacturer
- Cuts driver training costs



FIRST MATCHED UNITS  
BUILT BY ONE MANUFACTURER

COMPACT, EFFICIENT HYDRAULIC DRIVES FOR CRANES • TRUCKS • TRACTORS • SCRAPERS • SHOVELS • DRILLING RIGS

# Allison

## TORQMATIC DRIVES

## Westinghouse Air Brake Names Vice President

To coordinate the efforts of all Westinghouse Air Brake divisions with respect to the procurement and execution of contracts for the armed forces and government agencies, Earl D. Hilburn has been named to the new office of vice president, government contract service, of the Westinghouse Air Brake Co., Wilmerding, Pa., manufacturer of compressors and tanks.



Earl D. Hilburn, vice president, government contract service, Westinghouse Air Brake Co., Wilmerding, Pa.

For the past five years, Mr. Hilburn has been director of engineering services for Melpar, Inc., Alexandria, Va., a wholly owned research subsidiary of Westinghouse Air Brake. In 1951, he established Melpar's Cambridge, Mass., laboratory and served as its first manager.

## U. S. Rubber Names Two

J. W. Pressler has been appointed district manager at Springfield, Mass., and Merrill E. Kirsch has been named branch manager in Cincinnati, Ohio, by the tires division of the U. S. Rubber Co., Rockefeller Center, New York 20, N. Y.

Mr. Pressler joined the company in 1950 and has been in truck tire sales in Baltimore, Md. Mr. Kirsch started with U. S. Rubber in 1948 and has recently been a truck tire salesman in Cincinnati.





E. E. Esgate, Thew vice president.

#### Thew Elects E. E. Esgate

The board of directors of the Thew Shovel Co., Lorain, Ohio, has elected E. E. Esgate a vice president of the firm. He has been active in all phases of the company's operations since he joined Thew in May, 1949. During World War II, he served with the Corps of Engineers, as a civilian and as an officer.

In another personnel change, Francis S. Battin, formerly assistant export manager, has been named export sales manager. He has been with the firm for eight years, serving in various export and sales capacities.

#### Le Roi Co. Promotes Two

Two men have been promoted by the Le Roi Co., Milwaukee 14, Wis., manufacturer of compressors, drills, engines, and allied equipment. Hugh M. Little has been named vice president of the firm, and Norman J. Kimber has been promoted to the position of works manager of the Milwaukee division.

Mr. Little will be in charge of all co-ordinating activities between Le Roi and the Westinghouse Air Brake Co., its parent firm. He will also have functional control of all manufacturing for Le Roi and its divisions.

Mr. Kimber moves up from assistant works manager and succeeds Mr. Little. He will be responsible for manufacturing operations at the Milwaukee plant.

#### Euclid Promotions

The Euclid Road Machinery Co., Cleveland 17, Ohio, a subsidiary of the General Motors Corp., announced two promotions in its sales organization. V. L. Snow, formerly manager of domestic sales, has been made director of sales. J. E. Ehlert replaces Mr. Snow, moving up from the position of assistant sales manager.

Replacing George M. Perry as manager of the customer service department is Robert J. Lenz, a member of the firm for the past 16 years. Mr. Perry has been named director and works manager of Euclid Great Britain, Ltd.

#### Chain Belt Promotes Leek

The newly created position of mid-Atlantic district manager for the Chain Belt Co., Milwaukee 1, Wis., has been filled by Richard Leek of the construction machinery division.

Mr. Leek will remain at his present location, 4125 Whitaker Ave., Philadelphia, Pa.

#### D & A Elects Angell

Elected as vice president of the western division of the Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass., is Arthur D. Angell. Since 1945, he has been manager of west coast operations.

Mr. Angell graduated from the Wharton School of Business Administration of the University of Pennsylvania in 1922. Before joining Dewey & Almy in 1927, he worked for the Standard Oil Co. of California and the Moore Dry Dock Co.,

San Francisco, Calif. Mr. Angell started with D & A as manager of its California factory.

#### Willys Names Manager

A veteran of more than 25 years in the automotive industry, Sam F. Green has been appointed merchandising manager for commercial cars and Jeeps of the Kaiser-Willys sales division of Willys Motors, Inc., Toledo 1, Ohio. Mr. Green will direct sales of Willys trucks, station wagons, sedan deliveries, and the Universal Jeep.

#### Kensington Appointment

Newly appointed sales engineer in the Michigan-Indiana-southern Wisconsin territory for the Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill., is Walter L. Vaughan. Mr. Vaughan has had 15 years experience in the manganese and steel industry.

The firm, a subsidiary of Poor & Co., Chicago, manufactures manganese steel replacement parts for the gravel, rock, cement, and other industries.

## Caterpillar No. 6 Shovel gets the call on Chicago's biggest excavating job



Excavation for the huge 2350-car, multi-level, underground Grant Park Garage, on Chicago's lake front, involves moving more than 500,000 cubic yards of earth. It's the biggest job of its kind ever undertaken in the city.

When the digging started last spring, several competing types of tractor-shovels were tried out by Speedway Wrecking Company, excavating contractors. It was the Cat\* No. 6 Shovel that won hands down.

The big bucket of this No. 6 handles 2-yard loads with ease. Loading into trucks, Speedway reports average production of 140 cubic yards per hour. And the machine turns in this kind of performance day after day without a hitch.

Excellent visibility, easy control, fast lift and turn action are added reasons why operators and owners both like this big, tough digging and loading tool.

All you need is a demonstration on your own job to be convinced. Your Caterpillar Dealer will arrange to demonstrate whenever you give the word. And he'll back the machine with top-notch service and genuine parts.

Remember—Caterpillar equipment not only *earns* more profit on the job—it's *worth* more when you want to sell. Look at your last cost first!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

# CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—©



# *Airbase road job*

## **154 days ahead of schedule**



### **On 3.15-mile cycles C Tournapulls move 160 pay yds. hourly**

To speed completion of a 600,000-yard 4-lane highway over the old Macon-Warner Robins airbase road, E. M. Beckham Construction Company of Perry, Georgia, is using 3 C Tournapulls. Their 2 newest "C's", purchased in 1952, have 16-yd. heaped capacity scrapers; the older "C", 14 yds. The 16-heaped-yd. Tournapulls are push-loaded with about 12 pay yards of wet sandy clay per load. The 14-heaped-yd. "C" loads between 10 and 11 pay yards. Load time averages 60 seconds for 12 yds. . . . 50 seconds for 10 to 11 yds. Combined haul-spread-and-return are about the same for all three — average 10 minutes for the 3.15-mile cycle. Combined output for the 3 units on this long haul varies from 160 to 170 pay yards per 55-minute hour.

### **In 73 days, 169,000 yards**

On all lengths of haul, the Tournapulls have accounted for 169,000 pay yards in 73 working days (730 working hours). At this rate of production, the "C's" will finish their share of the 300-day job in 156 days. Besides roadwork, Owner E. M. Beckham has also used his Tournapulls recently to move 392,000 yards on railroad and limestone stripping jobs at Atlanta, Perry, Valdosta, and Rome, Ga. Working for the Southern Railway at Valdosta, 2 of his Tournapulls hauled 117,000 yards in 63 working days.

### **No need to add oil after 3 years in service**

"The 'C's' work in places where other tractors and pans can't," says Job Supt. Paul M. Turner. "This is especially true in railroad work where 25' working widths

occur. (Tournapulls can turn 180° in radius of 15'). Tournapulls are the best rubber-tired equipment I've ever used. The oldest unit doesn't use a drop of oil after 3 years use. It takes 1 hour 15 minutes to fuel and grease other rubber-tired units every morning compared with 15 minutes on the C Tournapulls."

These machines are an even better buy today than ever before. LeTourneau earthmoving know-how has now been combined with Westinghouse Air Brake precision manufacturing and research experience. The result is better machines than ever before. Ask your LeTourneau-Westinghouse Distributor for a demonstration. He'll be glad to show you how these high-speed, high-traction Scrapers can boost your profits, too!



**17 MPH ON HAUL** — Despite haul through spongy footing in cut and fill and 2 crossovers through traffic on open road, Tournapulls average 17 mph for 3.15-mile cycle. Complete round trip takes each unit only 11 minutes. Units also drive over main highways between all jobs. They averaged a typical trip, Valdosta to Warner Robins, at 21½ mph — made the 150 miles through traffic in 7 hours.

Tournapull — Trademark Reg. U. S. Pat. Off. P-433-H-b



## **LeTourneau-Westinghouse Company**

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company



